DOES NOT CIRCULATE

UNIVERSITY OF MICHIGAN
SEP 15 1954
HOSPITAL LIBRARY

# Journal of THE AMERICAN DIETETIC ASSOCIATION

VOL. 30, NO. 9.
ptember 1954

TRENDS ON FOOD PROCESSING
*Gladys E. Vail*

DIET FOLLOWING PARTIAL GASTRIC RESECTION
*Martha N. Lewis et al.*

DIETARY SURVEY OF A PERUVIAN JUNGLE TOWN
*Hilda S. White et al.*

QUICK METHOD FOR APPRAISING FOOD INTAKES OF GROUPS
*Ruth Uhler Thomas et al.*

INTERPERSONAL RELATIONSHIPS IN DIETETICS
*Roy Brener*

PSYCHODRAMA AS A TEACHING AID
*John S. Pearson and Mildred J. Skalitsky*

ATTRACTIVE MENU ITEMS
*Dorothy Dickins et al.*

*Needed* by Small Hospitals: The *Shared* Dietitian
Dietary Consultation for Small Hospitals
Measuring the Effectiveness of Food Service Institutes

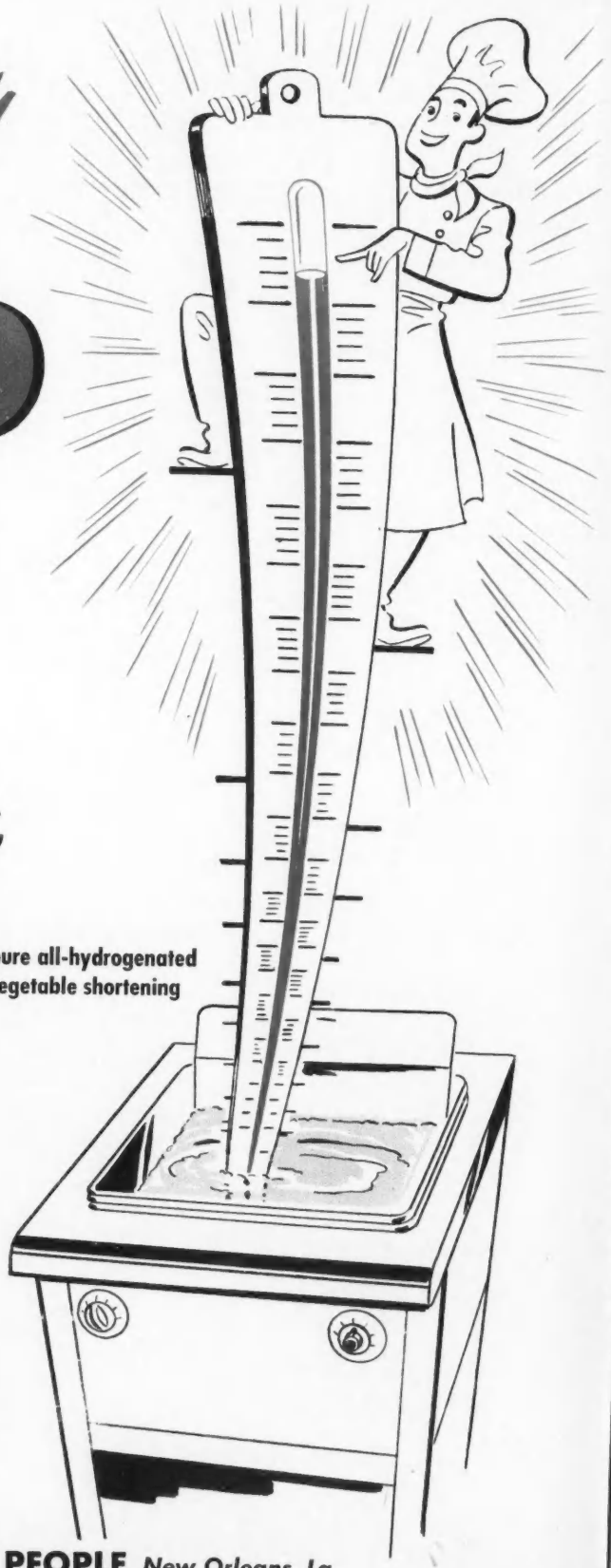
37th A.D.A. Annual Meeting, Philadelphia ctober 26–29, 1954

PUBLISHED BY *The American Dietetic Association*

*heavy-duty*

# mfb

## the shortening with the high smoke point



**A pure all-hydrogenated vegetable shortening**

*Made by* **THE WESSON OIL PEOPLE** *New Orleans, La.*

VOLUME 30
NUMBER 9

# Journal OF THE American Dietetic Association

## CONTENTS, SEPTEMBER 1954

TODAY'S TRENDS IN FOOD PROCESSING—*Gladys E. Vail*, Ph.D. ... 845
DIETARY REGIMEN FOLLOWING PARTIAL GASTRIC RESECTION—*Martha N. Lewis, Margaret Ann Murray, and Robert M. Zollinger*, M.D. ... 852
DIETARY SURVEYS IN PERU. II. Yurimaguas, A Jungle Town on the Huallaga River.—*Hilda S. White*, Ph.D., *Carlos Collazos, Ch.*, M.D., *Philip L. White*, Ph.D., *Ruth L. Huenemann*, D.Sc., *Rosa Benites, Aurora Castellanos, Yolanda Bravo, Irma Moscoso, and Aida Dieseldorff* ... 856
RAPID METHOD FOR QUALITATIVE APPRAISAL OF FOOD INTAKES OF GROUPS. Procedure and Reliability—*Ruth Uhler Thomas, Hazel Metz Fox, Harriet J. Kelley*, Ph.D., *Elsie Z. Moyer, and Icie G. Macy*, Ph.D., Sc.D. ... 865
INTERPERSONAL RELATIONSHIPS IN DIETETICS—*Roy Brener*, Ph.D. ... 872
PSYCHODRAMA AS A TEACHING AID—*John S. Pearson and Mildred J. Skalitsky* ... 876
ATTRACTIVE MENU ITEMS—*Dorothy Dickins*, Ph.D., *A. Alexander Fanelli, and Virginia Ferguson* ... 881
CURRENT COMMENT
*Needed* by Small Hospitals: The *Shared* Dietitian—*Thelma Pollen* ... 886
Dietary Consultation for Smaller Hospitals in Georgia—*Margaret Dykes* ... 888
Measuring the Effectiveness of Food Service Institutes—*Alice H. Smith and Myrtle B. VanHorne* ... 890
STUDENT OPINION
Genetotrophic Concent in Nutrition—*Elizabeth M. Elbert* ... 900
Fructose Metabolism—*Kopilovich Shai* ... 902
Bacteria in Human and Animal Nutrition—*Rauno A. Lampi* ... 902
Amino Acid Requirements for Blood Regeneration—*Milton Kaplow* ... 904
Heat and Nutritive Value of Animal Protein—*Elizabeth M. Elbert* ... 906
CURRENT LITERATURE ... 910
TENTATIVE PROGRAM, 37TH ANNUAL A.D.A. MEETING ... 930
COMMERCIAL EXHIBITORS, 36TH ANNUAL A.D.A. MEETING ... 936
NEW NOTES ... 938

The Journal of the American Dietetic Association is published monthly by The American Dietetic Association, Mt. Royal & Guilford Aves., Baltimore 2, Md., and 620 N. Michigan Ave., Chicago 11, Ill. Neither the Association nor the Editor assumes responsibility for the opinions expressed by authors of papers abstracted, quoted, or published in full in this Journal.

*Subscription Rates:* $8 per year in advance in the U. S., Canada, and countries of the Postal Union; all other countries, $7 per year in advance. Special rate to undergraduate students and dietetic interns in approved internships, $5 per year in advance, if order is approved by head of the department. Single copies 75 cents in advance. All correspondence concerning Journal subscriptions, orders for copies or reprints from the Journal, and notices of change of address should be sent to The American Dietetic Association, Mt. Royal & Guilford Aves., Baltimore 2, Md., or preferably 620 N. Michigan Ave., Chicago 11, Ill. Notices regarding change of address should reach the publisher by the *23rd of the month before the date of issue* on which the change is to take effect and both old and new addresses must be given. Claims for Journals lost in the mail will not be entertained more than six months after the date of the issue involved.

*Editorial Correspondence:* All articles and notices for publication, general correspondence, and inquiries should be sent to the Editor at The American Dietetic Association, 620 N. Michigan Ave., Chicago 11, Ill. Manuscripts are accepted for publication on condition that they are contributed solely to the Journal. Copy must be double-spaced and two copies, an original and one carbon, submitted.

*Advertising:* All correspondence concerning advertising should be addressed to The American Dietetic Association, 620 N. Michigan Ave., Chicago 11, Ill.

COPYRIGHT, 1954, BY THE AMERICAN DIETETIC ASSOCIATION Printed in U.S.A.
Entered as second-class matter June 30, 1925 at the Post Office at Baltimore, Md. under the act of August 24, 1912.
Published monthly by The American Dietetic Association

# OFFICERS, 1953-1954, THE AMERICAN DIETETIC ASSOCIATION

**Headquarters of the Association: 620 N. Michigan Ave., Chicago 11**

## *Coordinating Cabinet*

### EXECUTIVE BOARD

*President*, GRACE BULMAN, Veterans Administration, Washington, D. C.
*President-Elect*, FERN W. GLEISER, University of Chicago
*Speaker of the House of Delegates*, E. NEIGE TODHUNTER, Ph.D., University of Alabama, University
*Secretary and Chairman, Membership Committee*, ESTHER A. ATKINSON, The Pennsylvania State University, State College
*Treasurer and Chairman, Finance Committee*, DORIS T. ODLE, University of Colorado Dept. of Medicine, Denver

### SECTION CHAIRMEN

*Community Nutrition*, GERALDINE M. PIPER, University of Tennessee, Knoxville
*Diet Therapy*, DORIS JOHNSON, Ph.D., Grace-New Haven Community Hospital, New Haven, Conn.
*Food Administration*, MRS. CORA E. KUSNER, Colorado State Hospital, Pueblo
*Professional Education*, HENDERIKA J. RYNBERGEN, Cornell University-New York Hospital School of Nursing, New York City

### COUNCIL OF THE HOUSE OF DELEGATES

*Speaker*, E. NEIGE TODHUNTER, Ph.D., University of Alabama, University
*Speaker-Elect*, MARY REEVES, Children's Bureau, Dept. of Health, Education and Welfare, Chicago
*Delegates of the House of Delegates*
*Secretary*, MRS. ANNA DEPLANTER BOWES, Pennsylvania Dept. of Health, Harrisburg ..... 1954
LOUISE ESCH, Stanford University Hospitals, San Francisco 5 ..... 1954
ADELIA M. BEEUWKES, University of Michigan, Ann Arbor .. 1955
JANE HARTMAN, Maryland Dept. of Health, Baltimore ..... 1955
*Senior Delegates-at-Large*
MRS. BESSIE BROOKS WEST, Kansas State College, Manhattan ..... 1954
ELIZABETH PERRY, City Hospital, Cleveland ..... 1954

### DELEGATES-AT-LARGE

LILLIAN S. COOVER, Ph.D., 2121 Hughes Ave., Ames, Iowa .. 1955
MANIZA MOORE, Veterans Administration, Atlanta, Georgia. 1955
MILDRED BONNELL, University of Washington, Seattle ..... 1956
MARGARET A. OHLSON, Ph.D., Michigan State College, East Lansing ..... 1956

## *Headquarters Staff*

RUTH M. YAKEL, Executive Secretary
DOROTHY J. BATES, Assistant to Educational Director
MILDRED L. EGEBERG, Advertising and Exhibition Director
MRS. DOROTHY WEBER INYARD, Placement Bureau Director
MRS. THELMA POLLEN, Public Relations Director
WILMA F. ROBINSON, Educational Director
J. HART ROSDAIL, Business Manager
MRS. DOROTHEA F. TURNER, Editor, JOURNAL
HARRIET E. SANKEY, Managing Editor, JOURNAL
CLARA ZEMPEL, Professional Activities Director

### ADVISORY BOARD

ANTHONY ROURKE, M.D., Private Consultant, 175 Barnard Rd., New Rochelle, N. Y. ..... 1954
CHARLES GLEN KING, Ph.D., The Nutrition Foundation, Inc., New York City ..... 1955
FREDRICK J. STARE, Ph.D., M.D., Harvard School of Public Health, Boston ..... 1956

### AWARDS, SCHOLARSHIP AND LOAN FUND BOARD

MEREDITH JONES, 157 Aspinwall Ave., Brookline, Mass.

### DIETETIC INTERNSHIP BOARD

HENDERIKA J. RYNBERGEN, Cornell University-New York Hospital School of Nursing, New York City ..... 1954

### JOURNAL BOARD

ADELIA M. BEEUWKES, University of Michigan, Ann Arbor 1954
CALLIE M. COONS, Ph.D., Chief, Bureau of Human Nutrition Research, U. S. Dept. of Agriculture, Washington, D. C... 1954
MRS. MARTHA NELSON LEWIS, 1553 Demorest Rd., Columbus, Ohio ..... 1954
MILDRED BONNELL, University of Washington, Seattle ..... 1955
MRS. BESSIE BROOKS WEST, Kansas State College, Manhattan ..... 1955
MARTHA F. TRULSON, D.Sc., Harvard School of Public Health, Boston ..... 1955
MRS. CORINNE H. ROBINSON, 90 E. Stewart Ave., Lansdowne, Pa ..... 1956
MRS. ELIZABETH K. CASO, Diabetes Section, Public Health Service, Dept. of Health, Education and Welfare, Boston ..... 1956
MARGARET A. OHLSON, Ph.D., Michigan State College, East Lansing ..... 1956

### PLACEMENT BUREAU BOARD

MRS. VERNA A. MCKINLEY, 16 River Dr., Appleton, Wis... 1954
MYRTLE VAN HORNE, Michigan Dept. of Health, Lansing.. 1954
MRS. HELEN H. ANDERSON, Stanford University Hospitals, San Francisco ..... 1954
EVELYN A. CARPENTER, Philadelphia General Hospital, Northern Division, Philadelphia 40 ..... 1955
ELIZABETH P. SEARS, 6 Siwanoy Rd., West Hartford, Conn. 1955
HELEN L. TWEEDALE, 15843 Meyer Rd., Detroit ..... 1955
ELMIRA E. BLECHA, VA Hospital, Houston 31 ..... 1956
ANNA M. DRISCOLL, University of Utah, Salt Lake City 2... 1956
LUCILLE M. REFSHAUGE, Hartford Hospital, Hartford 15... 1956

### INVESTIGATION BOARD

NELL MORRIS, 3522 Rankin St., Dallas ..... 1954
LOUISE ESCH, Stanford University Hospitals, San Francisco ..... 1955
MARGARET H. BROOKES, Ph.D., 5718 S. Dorchester Ave., Chicago 37 ..... 1956

### COMMITTEE CHAIRMEN

*Annual Meeting*, EVELYN A. CARPENTER, Philadelphia General Hospital, Northern Division, Philadelphia 40; MARGARET A. NEUBERT, 4821 Fillmore Terr., Philadelphia
*Civil Defense*, DOROTHY L. BOVEE, D. C. Chapter, American Red Cross, Washington, D. C.
*Constitution*, ELIZABETH H. TUFT, Wesley Memorial Hospital, Chicago
*Educational Exhibits*, RITA CAMPBELL, National Live Stock and Meat Board, Chicago
*History of ADA*, MRS. ANNA BOLLER BEACH, National Live Stock and Meat Board, Chicago
*History of Nutrition and Dietetics*, E. NEIGE TODHUNTER, Ph.D., University of Alabama, University
*Library*, ELIZABETH H. TUFT, Wesley Memorial Hospital, Chicago
*Nominating*, DORIS JOHNSON, Ph.D., Grace-New Haven Community Hospital, New Haven, Conn.
*Program Planning*, BEULAH A. HUNZICKER, The Presbyterian Hospital, Chicago; MIRIAM E. LOWENBERG, Ph.D., The Pennsylvania State University, State College
*Public Relations*, A. JUNE BRICKER, Metropolitan Life Insurance Co., New York City
*Vocational Guidance*, GERTRUDE MILLER, Veterans Administration Center, Los Angeles

## PRESIDENTS OF STATE DIETETIC ASSOCIATIONS AFFILIATED WITH THE AMERICAN DIETETIC ASSOCIATION

ALABAMA: Dr. Bessie L. Davey, Box 2634, University of Alabama, University
ARIZONA: Mrs. Florence R. Watson, Box 52, Whipple
ARKANSAS: Mrs. Barbara S. McDonald, Arkansas Dept. of Health, Little Rock
CALIFORNIA: Virginia F. Stokdyk, 251 Parnassus Ave., San Francisco 17
COLORADO: Mrs. Louise C. Poley, 277 S. Logan St., Denver 9
CONNECTICUT: Mrs. Edith M. Cushman, State Dept. of Education, Hartford
DELAWARE: Dolores Barchick, 1226 Washington St., Wilmington
DISTRICT OF COLUMBIA: Mrs. Marjorie Beattie, 6234 Valley Rd., Bethesda 14
FLORIDA: Mrs. Dorothy C. Monroe, VA Hospital, Lake City
GEORGIA: Margaret Dykes, Georgia Dept. of Public Health, Atlanta
IDAHO: Shirley A. Newcomb, 812 Ash St., Moscow
ILLINOIS: Isabelle N. Peterson, 1400 Lake Shore Dr., Chicago 10
INDIANA: Hazel E. Wessel, Methodist Hospital, Indianapolis
IOWA: Mrs. Darleen P. Ayres, 1600 N. Ash, Ottumwa
KANSAS: Mary J. Carter, Watkins Memorial Hospital, University of Kansas, Lawrence
KENTUCKY: Florence A. Imlay, University of Kentucky Experiment Station, Lexington
LOUISIANA: Helen E. Underwood, Caddo Parish, 501 Courthouse, Shreveport
MAINE: Dorothy L. Woodcock, Dept. of Health & Welfare, Augusta
MARYLAND: Pela F. Braucher, 110-E Ames Rd., Northwest Pk., Silver Spring
MASSACHUSETTS: Grace M. Covey, 16 Ware St., Cambridge, Mass.
MICHIGAN: Isabel Foster, University Hospital, Ann Arbor
MINNESOTA: Ethel Heaberlin, Minnesota Dept. of Public Welfare, St. Paul
MISSISSIPPI: Mrs. Lucille S. Ryan, 226 Redwood Ave., Jackson 9
MISSOURI: Henrietta Becker, Barnes Hospital, St. Louis
MONTANA: Sister Ann Perpetua, St. Vincent Hospital, Billings
NEBRASKA: Betty J. Yapp, Lincoln General Hospital, Lincoln 2
NEVADA: Mrs. Muriel P. Pelham, VA Hospital, Reno
NEW HAMPSHIRE: Alice W. Van Dyke, St. Paul's School for Boys, Concord
NEW JERSEY: Reizel Hirschfield, VA Hospital, East Orange
NEW MEXICO: Mrs. Madge L. Halvorsen, 1608 Cardenas Dr., N. E., Albuquerque
NEW YORK: Dorothy Kinnear, 165 Ft. Washington Ave., New York City 32
NORTH CAROLINA: Rebecca P. Rogers, Watts Hospital, Durham
NORTH DAKOTA: Mrs. Winnifred L. Hipsley, VA Hospital, Minot
OHIO: E. Inistore Simms, Youngstown Hospital Association, Youngstown 4
OKLAHOMA: Mrs. Mary A. Morris, R. R. #1, Chickasha
OREGON: Olive C. Carlson, VA Hospital, Portland 7
PENNSYLVANIA: Sister Maude Behrman, Lankenau Hospital, Philadelphia 31
RHODE ISLAND: Helen C. MacLean, St. Joseph's Hospital, Providence
SOUTH CAROLINA: Margaret Freeman, Cardiac Clinic, Medical College, Charleston 16
SOUTH DAKOTA: Dr. Lida M. Burrill, Home Economics Division, College Station
TENNESSEE: Bernice M. Hopkins, Vanderbilt University Hospital, Nashville 4
TEXAS: Dr. Florence I. Scoular, N. T. Station, Box 5217, Denton
UTAH: Anna M. Driscoll, 470 So. 13th E., Salt Lake City
VERMONT: Kathleen Van Cleft, Vermont Dept. of Health, Burlington
VIRGINIA: Julia P. Van Horn, University of Virginia Hospital Charlottesville
WASHINGTON: Mrs. Dorothea E. Nicholson, 1101-17th Ave., Seattle 22
WEST VIRGINIA: Sister Edwina Zerwas, C. M. P.; St. Mary's Hospital, Huntington
WISCONSIN: Mrs. Norma T. Dolan, 4904 W. Wisconsin Ave., Milwaukee 13
WYOMING: Marticia E. Fox, VA Hospital, Sheridan
HAWAII: Mrs. Shizuko H. Miyamoto, 332 N. Kuakini St., Honolulu 17

# Today's Trends in Food Processing[1]

GLADYS E. VAIL, Ph.D.

*School of Home Economics, Purdue University, Lafayette, Indiana*

TODAY the many interests of the homemaker outside of the home have made her reluctant to spend long hours in the kitchen preparing food for the family. Civic and leisure activities, gainful employment in industry, in educational institutions, and in many other areas have left her with less and less time in the home. Also, she is being told of her responsibility to devote time to the needs of the family other than the physical needs. Thus, she resorts to ready-prepared and partially prepared foods. She is also conscious of the problem of good nutrition and of quality. More and more, nutritious foods of high quality are desired, and even demanded, not only by the homemaker herself, but by various members of the family. Likewise she has come to expect variety. Fresh fruits and vegetables of all kinds are found in the market through much of the year. With few exceptions, frozen fruits, vegetables, meats, and fish are available in all areas of the country. Among these exceptions remain crisp green vegetables and tomatoes.

The homemaker has thus come to expect to be able to purchase a great variety of foods of high quality, packaged, ready to pick up and pay for with no waiting for individual weighing and packaging. This has led to extensive packaging of foods. Today, as we go through the store on our weekly shopping mission, it is hard to think of any food item likely to be on our list which is not packaged, whether it be potatoes, steak, cake mix, cereal, lettuce, frozen chicken à la king, frozen beef pie, or orange juice concentrate. Many of these foods are held only a few days, others a few weeks, and some a few months. Whenever foods are to be held, the problem of keeping-quality or shelf-life arises. With each food the problem is different; and each food must be treated according to its individual characteristics.

## MOLD DETERIORATION

Packaging conditions suitable for one may not be right for another. Carrots are packaged in a perforated container. Rutabagas are coated with a wax (if you will agree that waxing is a method of packaging; at least it is a method of protection). Many foods are packaged in air-tight containers, and others in sealed, moisture-vaporproof boxes.

It is relatively simple in packaging to exclude either moisture and air from the package, or to hold all moisture in, but other problems arise. Cheese, for example, can be readily packaged to retain the moisture naturally present, but molds may be encountered. In recent months many articles have been concerned with the finding of a fungistatic agent for use on cheese wrappers. A recent issue of one journal contains seven articles dealing with the use of sorbic acid, a harmless polyunsaturated $C_6$ fatty acid (1–5). Sorbic acid is said to satisfy all of the requirements of a good fungistatic agent. One article (6) enumerated eleven requirements of such an agent for use on cheese wrappers and concluded that sorbic acid is an effective, non-toxic, and practical fungistatic agent, well adapted for all cheese packaging. It is estimated that by suitable packaging over 13 million lb. cheese lost each year due to molding can be saved. The value of such packaging is evident when you buy a package of Wisconsin natural cheese at the store, hold it in your refrigerator for days, or even a few weeks without apparent change; then you open the package, use some of the cheese, and, although you again wrap it carefully, within a few days molds develop.

The problem of mold is not limited to cheese. Citrus fruits, breads, cured meats, and many other foods are subject to deterioration by molds.

## ANTIOXIDANTS PREVENT RANCIDITY

Another type of deterioration encountered in packaged foods, which contain even small amounts of fat, is rancidity. For years the use of antioxidants has been investigated. Rancid flavor detracts from the acceptability of most foods and may even render them inedible. Although this has long been a subject of study, the literature of the past two years gives evidence of much recent research. Kraybill and Dugan (7) have given us an excellent review en-

[1] Presented at the Food and Nutrition Institute, University of Wisconsin, March 25 to 27, 1954.

titled "Antioxidants. New Developments for Food Use." They point out the value of antioxidants in retarding rancidity in food fats and foods containing fats. They consider this an important contribution to better nutrition and to conservation of our food supply, for the development of rancidity not only lowers the palatability but also impairs the nutritive value of foods. They emphasize that rancidity may occur in cereals and other foods of relatively low fat content and under conditions of refrigeration, dehydration, and salting which retard or prevent microbial spoilage.

Among the antioxidants mentioned by Kraybill and Dugan is one isolated from the sulphite waste liquor of the western hemlock, one from the bark of the Douglas fir and the Jeffrey pine, and one which is extracted from the fruit of the Osage orange. These antioxidants are now largely in the proving stage, with their toxic or nontoxic properties being investigated. The authors pointed out that among the accepted antioxidants are sesamol, isolated from sesame oil, and thirty-two ground spices and herbs including rosemary and sage.

In discussing antioxidants used in foods, the authors mentioned butylated hydroxyanisole, also called BHA, and combinations of BHA with other substances. They reported that the use of these antioxidants makes it possible to prepare animal fats with stabilities comparable to those of hydrogenated vegetable shortenings. These antioxidants possess a high degree of carry-through—that is, they are effective in retarding the development of rancidity in foods such as pastry and crackers which contain these fats. The authors estimate that 50 per cent of the federally inspected lard produced in this country today is stabilized by BHA, and they infer that the increased amount of lard used for food purposes may be due to this use of antioxidants. In 1946 approximately 20 million lb. lard were used in the manufacturing of shortening; in 1952, there were 218 million lb. Due to the increased stability, it is now possible to use lard extensively in the manufacturing of such foods as soda crackers and to have them remain rancid-free even at summer temperatures.

Other foods listed by Kraybill and Dugan as being treated with antioxidants of the type containing BHA, often in combination with other agents, were breakfast cereals, deep-fat-fried corn crisps, potato chips, eviscerated turkeys, cooked turkey, frozen beef pies, and chicken potpies. Antioxidants may be used to prevent rancidity in nuts, such as peanuts and pecans, and in peanut butter. Fried foods may be protected by adding the antioxidant to the cooking fat, to the salt sprinkled on the foods, or to both.

Other antioxidants were found effective in preventing rancidity, but at least one imparted a bitter taste to the food. Another use of antioxidants given was to regard the loss of color in dried and ground red cayenne pepper. Preparations containing BHA, propyl gallate, and citric acid; corn oil, lecithin, and propyl gallate; and ground sesame seed are all effective. Orange oil and citrus oils, too, may be protected by certain antioxidants. There is also evidence that the onset of rancidity in dairy products may be retarded by use of certain antioxidants. However, Kraybill and Dugan point out that "because of food regulations and laws, antioxidants cannot be used commercially in dairy products in this country."

At the University of Wisconsin, Hanning, Bray, and others have reported on "Antioxidants in Home Preservation of Foods" (8). These workers were interested in extending the keeping quality of lard and frozen pork sausage—both foods which are extensively stored for home use—as well as Lake Michigan trout, white fish, and chicken thighs. After considering the availability of substances tried and the ease of use, they recommended that:

"1. For the home treatment of lard—melt (140°F. if a thermometer is available) 3 pounds hydrogenated vegetable shortening. Mix well with 5½ teaspoons of cream of tartar. Add to about 10 gallons lard and cracklings while still hot. Stir well and strain. *Or*, add to 10 gallons freshly made lard which has been melted and stir thoroughly.

"2. For frozen pork sausage, fish or chicken—no antioxidants."

Work at the Western Regional Research Laboratories on the value of an antioxidant (Tenox II) in retarding the tendency of turkey fat to develop rancidity during cooking and subsequent frozen storage as creamed turkey has been reported (9). Either cooking the turkey with the antioxidant or adding the antioxidant to the cream sauce in amounts equal to 0.005 per cent, based on the weight of the uncooked bird retarded the development of rancidity for a year. However, all-round good flavor was more effectively retained when the antioxidant was added at the beginning of the cooking process.

Antioxidants are being studied in relation to their protective value for bacon, also. Work published last November (10) indicated that the shelf-life of bacon is increased when certain fat stabilizers are added, either by injecting the antioxidant into the bacon or by coating the bacon with lard containing the antioxidant.

### OTHER USES OF ANTIOXIDANTS

Cold sterilization, the use of beta or gamma radiation, is a challenging problem to those interested in food preservation. A recent news note (11) indicated that a shipment of fission waste products from "A Bomb" manufacture had been sent from the Argonne National Laboratory to the Food Technology Laboratories of the Massachusetts Institute of Technology for cold sterilization experiments. Researchers there have pointed

out that if cold sterilization is ever undertaken, it may well be with sources of this type. There is evidence that these radiations will sterilize foods, but it is also known that off-odors and -flavors develop which, in certain foods, at least, are apparently due to oxidative changes, often complex in nature. There is speculation in several laboratories that antioxidants would be of value in preventing or retarding the development of these off-flavors and -odors.

The value of sorbic acid on the wrapper used for cheese was mentioned earlier. Antioxidants have been used to coat packaging materials of various types, such as waxed paper, parchment, glassine, and paper board (12, 13). This treatment delayed the onset of rancidity in the film of fat which spread from the food to the packaging material. Often the first evidence of rancidity was in the film on the paper or cardboard. From there it rapidly spread to the food itself. Nuts, potato chips, corn chips, bacon, crackers, powdered milk, and many other products may be given protection by such packaging.

### ASCORBIC ACID

Another antioxidant, ascorbic acid, is used commercially in a number of foods. It prevents surface darkening and the development of off flavors in canned fruits, carrots, frozen fruits of various kinds, dried fruits, and fruit juices. It is also said to be effective in protecting salmon steaks against rancidity and off-flavors and to improve the color of cured meats, especially packaged cured meats.

At the University of Wisconsin (14), workers have been interested in the value of ascorbic acid in preventing the darkening of kraut. They found ascorbic acid provided protection for the color of kraut packed in Pliofilm bags when it was kept under refrigeration in the dark for as long as six weeks. Ascorbic acid was reasonably effective in the presence of ferric ions, but not in the presence of cupric ions. It was ineffective in protecting kraut exposed to radiation from fluorescent lights.

Ascorbic acid or a combination of ascorbic acid and citric acid has long been recommended for the home freezing of peaches, apricots, and other fruits which darken readily. The protective value of ascorbic acid alone and in combination with citric acid for fruits frozen in a sirup and stored at 0°F. was investigated at the State College of Washington (15). For Bing cherries and J. H. Hale peaches, a minimum of 150 mg. ascorbic acid per pound of fruit was indicated for adequate protection against oxidative changes. For Italian prunes, the minimum was 350 mg. per pound of fruit. The use of citric acid in combination with ascorbic acid and the use of commercial mixes of these acids were not as effective in maintaining high quality as was ascorbic acid alone.

### HEAT TO PREVENT DISCOLORATION

Workers at the Bureau of Human Nutrition and Home Economics (16), in reviewing the problem of discoloration and other changes due to oxidation, mentioned the protective value of heat treatment by the use of hot water, steam, or hot sugar sirup; the exclusion of air by using a sugar solution to cover the cut fruit or by vacuumizing; and chemical treatment as the use of sulphur dioxide, ascorbic acid, and citric acid. They brought out that published articles indicate that a method effective for one food or one variety may not be equally effective for another.

The authors were interested in testing methods which would be practical for application in the home. York Imperial apples were frozen and canned. In preparation for freezing they were packaged with no preliminary treatment, after steaming for 2 min., and after soaking in a 4 per cent salt solution both with and without the addition of 125 mg. ascorbic acid per pint of fruit. Some apples were dry packed, others were packed with sugar, and some with sugar sirup. The authors concluded that some treatment was needed to retard changes in the natural color, texture, and flavor of frozen apples. They considered preheating in steam or packing the raw apple slices in dry sugar or sugar sirup with added ascorbic acid to be fairly successful.

Canned apples, too, were given preliminary treatments and both raw-pack and precooked-pack methods were tried. Raw-packed canned apples of the variety used had good color and texture when given no preliminary treatment and seemed to be the preferred product.

### VEGETABLE PROCESSING

In another study (17), snap beans were packed in glass home-canning jars, both raw and after precooking. They were given processing treatments equivalent in sterilizing value. Raw packs of snap beans were covered with boiling water. Precooked beans were boiled for 5 min., then packed into hot pint jars, cooking liquid was added, and the jars were sealed. It was found that both packs required 20 min. at 240°F. for adequate processing. The workers concluded that the convenient, raw-pack method can be used in the home without increasing the processing time over that required for precooked packs. The drained beans averaged 59 per cent of the total weight in the raw pack, and 69 per cent in precooked pack. Chemical analysis showed no real difference in the ascorbic acid content in the drained solids of raw and precooked packs, but in thiamine content the drained solids were lower in the raw pack than in the precooked. Palatability evaluations showed the beans prepared by the raw-pack method were superior to the precooked—that is, in color, natural flavor, absence of off flavor, texture, and over-all palatability—both when freshly processed

and after eight months' storage at 32°F. and at 75°F.

Work was reported from the University of Illinois (18) on the cooking of vegetables in tightly-covered and pressure saucepans until "done." The workers found that there was a lower retention of ascorbic acid in Brussels sprouts, cauliflower, spinach, asparagus, broccoli, and cabbage when cooked in the pressure saucepan than when cooked in a tightly-covered saucepan. Cooking in a pressure saucepan resulted in greater retention of ascorbic acid in Lima beans, peas, and soybeans. The two cooking methods gave practically the same results with snap beans. Asparagus, cauliflower, and snap beans were preferred when cooked in a tightly-covered saucepan, and broccoli, Brussels sprouts, Lima beans, peas, and soybeans were preferred when cooked in a pressure saucepan. The differences in palatability scores were not great, however.

### FROZEN FOODS

Although we continue to can foods and will undoubtedly do so, much of the work in recent years in the preserving of foods has been concerned with frozen foods. A comparison of the palatability scores and the ascorbic acid content of snap beans, strawberries, ground beef, and ground pork held at a fluctuating temperature of 0°F. to 10°F. and at a constant temperature of 0°F. was made at Iowa State College (19). No significant difference was found in the palatability and ascorbic acid content of frozen snap beans and strawberries held at a constant temperature and at a fluctuating temperature. However, the palatability of frozen ground beef and pork was better by small but statistically significant amounts when the products were stored at 0°F. rather than at the fluctuating temperature for forty weeks.

A comparison of sweetening agents for frozen halved strawberries was made by the Bureau of Human Nutrition and Home Economics (20). It was found that one part of sucrose to four parts of berries gave a superior product when compared with all other sweetening agents used. When the berries were frozen with no sugar and then the sucrose was added before serving, the berries were almost equal in flavor to those packed in sucrose. However, the score for texture was lower. The use of (a) 40 per cent sucrose sirup or (b) one part of corn sirup—either enzyme-converted or acid-converted—with three parts of 40 per cent sucrose sirup gave an acceptable product. Using all corn sirup—either enzyme or acid-converted—resulted in the lowest scores.

The controversy regarding the blanching of vegetables seems to be almost settled. However, we still come across statements, and often from apparently reliable sources, that if vegetables are to be held for only a short time, no blanching is necessary. Noble and Winter (21) undertook to find out whether serious deterioration took place in unblanched vegetables stored at 0°F. for periods ranging from one week to one month. They froze asparagus, green beans, and sweet corn both husked and unhusked. The asparagus, green beans, and husked corn were packed in Cellophane. All unscalded vegetables showed marked deterioration according to all criteria used. The unscalded asparagus and the unhusked corn developed marked off-flavor by the end of four weeks; unscalded beans by the end of three weeks; and the unscalded husked corn by the end of one week.

### PRECOOKING FROZEN FOODS

Precooked frozen foods seem to be of ever-increasing interest. From Michigan State College (22) we have a report of frozen precooked vegetables. The authors mentioned their interest especially in the possibility of freezing left-overs. They used asparagus, green beans, carrots, broccoli, and cauliflower. After cooking, the vegetables were cooled, packed in the cooking liquid, frozen, and stored up to two and a half months. They were heated for scoring without previous thawing. The results indicated that freezing after complete cooking was undesirable. The products were partially disintegrated, flavorless or off-flavor, soggy, mushy, and fair-to-poor in color. The ascorbic acid content was materially less than in vegetables processed according to the usual blanching procedure.

Home-frozen French fried potatoes were prepared at the Bureau of Human Nutrition and Home Economics (23). The two-step method for French-frying was used. The cooked drained potatoes were air cooled and packed in half-pint jars. Air was evacuated in some of the jars. In general, the authors found no value in the vacuum packing. They concluded that French fried potatoes could be successfully frozen and held at 0°F. for short storage periods of not more than two months. When held longer, changes in flavor and texture occurred which made them less acceptable.

### FROZEN BAKED GOODS

The possibilites of freezing rolls at home, especially the dough, either in bulk or shaped as rolls, is always appealing. The University of Illinois (24) reported work on the freezing and freezer-storage of baked rolls, Brown-'n-Serve rolls, and shaped roll dough. The unbaked rolls were evaluated after one, three, six, and nine weeks and the Brown-'n-Serve rolls and baked rolls after twelve and fifteen weeks of storage at −23.5°C. After each interval of freezer storage, the rolls baked from frozen dough had significantly smaller volumes than had freshly-baked rolls. After six and nine weeks' storage, the dough produced rolls which were flat on top and small in volume. Brown-'n-Serve rolls became more doughy

in texture, the grain slightly coarser, and the yeasty flavor more pronounced as freezer-storage time was increased. After each storage period, the baked rolls were rated higher than rolls prepared from frozen dough or frozen Brown-'n-Serve rolls. After fifteen weeks, the mean rating of the frozen baked rolls was still slightly above good. On the basis of these results, the authors recommended that rolls be baked before freezing.

Meyer and co-workers at the University of Tennessee (25) were interested in changes in the flavor of frozen cake batters. They found that whenever the cake contained a large amount of egg yolk, off-flavor developed when batters were frozen. This off-flavor did not develop as rapidly when the cakes were baked before freezing. For example, the unbaked batter containing a total lipid content of 8.3 per cent, of which 97 per cent was from egg yolks, developed pronounced off-flavor after two weeks' storage and were inedible after two months, whereas in the baked cakes off-flavor did not begin to develop until after two months' storage.

The addition of a fat antioxidant or lemon juice to the whole-egg sponge cake batters delayed the development of off-flavor and the formation of peroxides during freezer storage. Shortened cakes frozen as batter developed slight off-flavor after nine months' storage when hydrogenated vegetable oil was used, but not when butter was used. No off-flavor developed when the baked shortened cakes were frozen and stored. The authors stated that the flavor deterioration in frozen sponge cake batters may be caused by oxidation of the egg-yolk lipids during freezer storage.

### SAUCES AND GRAVIES

The problem of curdled sauces and gravies in precooked frozen foods has been the subject of numerous studies. One was reported from the Western Regional Research Laboratory (26), in which homogenization, various stabilizers, emulsifiers, thickening agents, temperature fluctuation, and different temperatures of storing and thawing the sauces were considered. The thickening agent which produced the highest quality product as well as prevented development of a curdled appearance and liquid separation was waxy rice flour. It was effective for the duration of the study, or eleven months. Other variations had no marked effect in preventing curdling.

### CHEMICAL ADDITIVES

Chemical additives are of extreme importance in the commercial food field. Some, such as vitamins and minerals used in the enrichment of flour, bread, and other cereal products or emulsifying agents in shortenings, are accepted without question. Others remain in a highly controversial state, as for example certain of the "bread softeners" as well as antibiotics, whether added to canned foods, ground meat, refrigerated sea water in which shrimp are held, or water sprayed on lettuce or other vegetables to extend keeping.

However, substances to be added to foods are not entirely limited to the commercial field. Meat tenderizers are being promoted. A number of different companies have preparations which are said to be of value in tenderizing meat. Hay and others (27) reported on the use of a commercial tenderizer on steaks and rump roasts. Under the conditions of the experiment, they found the cooking time was apparently shortened for those pieces of meat treated with the tenderizer. All treated steaks and the rump roast treated at room temperature were more tender than untreated samples.

Monosodium glutamate, too, has found its way into the American kitchen. Some form of this "seasoning" seems to have been well known to the Orientals for ages past. Monosodium glutamate is thought by many to improve the flavor, or at least the taste of food. It is also considered an antioxidant for frozen foods. There is not complete agreement as to the value of monosodium glutamate for either purpose. Some people find it objectionable, even at very low levels, while others may object to it only when used in large amounts. At Michigan State College (28), the effect of monosodium glutamate on the acceptance of frankfurters and pork sausage by 237 students was tested. Enough monosodium glutamate was added to one set of samples so that a trained taste panel could identify the product containing it. The results indicated that the students seemingly were unable to tell the difference between the two lots of frankfurters, but had a definite preference for the sausage containing the monosodium glutamate. The authors suggested that the frankfurters were so highly seasoned that the students could not detect the monosodium glutamate although the trained panel could.

Norton *et al.* (29) added monosodium glutamate to frozen foods, including various fish, such as mackerel, salmon, haddock, rosefish, and shrimp; to bacon, ham, pork sausage, ground beef, cube steaks, and poultry; and to fourteen vegetables, including peas, Lima beans, spinach, broccoli, and corn. They considered the monosodium glutamate of value in prolonging the quality of many foods during low-temperature storage. They reported that in many instances the onset of rancidity and loss of color in fish and meats was delayed; that broilers injected with monosodium glutamate equivalent to 5 per cent of their weight were superior to the controls in flavor, sweetness, and tenderness; that turkeys treated with monosodium glutamate were preferred to the untreated birds up to six months of frozen storage; and that both color and flavor were better in the treated than the untreated green vegetables, but only the flavor in the yellow vegetables. An

antioxidant effect was noted, particularly with respect to hams, bacon, pork sausage, and fatty fish.

### PROCESSING CHANGES COOKING PROPERTIES

During processing, foods are often altered in their culinary properties. Dehydrated eggs are handled differently from fresh eggs during food preparation. Likewise, dry milk solids used in place of liquid milk require some adjustment in the recipe. Although homogenization of milk does not appreciably change the appearance, it does affect the culinary qualities. Wegner and others (30) used homogenized and nonhomogenized milk in the preparation of beverages, desserts, and puddings. They found cocoa and chocolate beverages made with homogenized milk were pleasingly heavier in body, and the cocoa showed less sedimentation of cocoa solids during the period within which a hot beverage would usually be consumed. Cocoa and chocolate made with nonhomogenized milk had a stronger chocolate flavor, and the skin was more evident, heavier and more wrinkled. That made with homogenized milk was milder in flavor and to some even insipid. The color was lighter and the cocoa less watery.

Rennet desserts made with homogenized milk were more desirable in consistency and flavor but less desirable in texture than those made from nonhomogenized milk. Puddings made from commercially prepared mixes and homogenized milk were somewhat creamier than those made with nonhomogenized milk. The flavor of products made with homogenized milk was less pronounced and the color noticeably lighter than those of corresponding products made with nonhomogenized milk. Moreover, rennet desserts and puddings prepared from commercial mixes and homogenized milk were less translucent.

In another study, these workers (31) reported the use of homogenized and nonhomogenized milk in the making of cornstarch pudding. Within the range of the amount of cornstarch likely to be used, the homogenized milk gave a more viscous and a firmer consistency. The difference in consistency was associated with and probably due to the surface area of the fat globules in the two kinds of milk.

The gelation of pectin in uncooked jam from frozen red raspberries and strawberries was investigated by Kramer and Sunderlin (32). The findings reported indicated that uncooked strawberry jam may require a little more care in preparation than the uncooked red raspberry jam. In a brief note following the article proper, it was indicated that frozen and fresh peaches, cherries, fresh plums, blackberries, apricots, black raspberries, grapes, and cranberries may be successfully used in making uncooked jams.

### EFFECT OF EQUIPMENT SIZE ON CAKES

A study of the effect of size and shape of baking pan on the quality of shortened cakes was reported by Charley (33). She baked three different batters in two series of five pans. In the first series, the pans were the same length and width but varied in depth from 1 to 3 in. The second series were similar in capacity but varied in all dimensions.

The most marked effect of variations in size and shape of baking pan was on the appearance of the cakes. The shallower the pan, the flatter the top of the cake and the less pronounced the browning of the crust. For the same pan depth, rounding of the top of the cake was less pronounced in a wider, longer pan than in a narrower, shorter one. With a uniform pan capacity, the shallower the pan, the more rapid was the heat penetration. This was especially evident with the larger cakes. There was no consistent effect on crumb quality associated with either size or shape of pan. In general, the deeper pans, that is those 2½ and 3 in. deep, produced less desirable cakes than did the more shallow pans.

### TIME AND LABOR COSTS OF FOOD

And so, today with our many conveniences for food preparation, the homemaker may go to the store and buy her flour, lard, eggs, milk, and other ingredients and come home and prepare the food for the family—or she may buy mixes and partially prepared foods of various kinds and shorten the time and energy requirement for the meal. On the other hand, she may buy her food completely prepared, ready to heat and serve, such as the so-called TV dinners on a tray, chicken or beef pies, vegetables ready to heat and serve, and pie and cake ready-baked.

We are indebted to the Bureau of Human Nutrition and Home Economics (34) for a comparison of the home-prepared foods, the partially prepared, and the ready-to-serve.

Menus for two days for a family of four were prepared in the laboratory and in the home by a homemaker. Both workers were probably more skilled than many homemakers. The home-prepared meals cost $4.90 for a family of four for one day and required a total of 5.5 hr. for preparing, cleaning up, and serving. The partially-prepared meals cost $5.80 and required 2.9 hr. and the prepared meals $6.70 and took 1.5 hr. to prepare, serve, and clean up.

The meals were also evaluated from the standpoint of acceptability. A five-point scale was used and as scored by the group eating them, the home-prepared meals rated 4.9 on this scale. The partially prepared scored 4.3, and the ready-to-serve 3.8. The home-prepared meals cost 90 cents less than the partially prepared, and $1.80 less than the prepared meals, but the home-prepared meals required 2.4 hr. longer than the partially prepared, and 3.9 hr. longer than the prepared meals. Thus the homemaker must make a choice. Is quality, money, or time of the greatest value—and when will it be wise to sacrifice one and when another?

REFERENCES

(1) DEUEL, H. J., JR., ALFIN-SLATER, R., WEIL, C. S., AND SMYTH, H. F., JR.: Sorbic acid as a fungistatic agent for foods. 1. Harmlessness of sorbic acid as a dietary component. Food Research 19: 1, 1954.

(2) DEUEL, H. J., JR., CALBERT, C. E., ANISFELD, L., MCKEEHAN, H., AND BLUNDEN, H. D.: Sorbic acid as a fungistatic agent for foods. 2. Metabolism of $\alpha,\beta$-unsaturated fatty acids with emphasis on sorbic acid. Food Research 19: 13, 1954.

(3) MELNICK, D., AND LUCKMANN, F. H.: Sorbic acid as a fungistatic agent for foods. 3. Spectrophotometric determination of sorbic acid in cheese and in cheese wrappers. 4. Migration of sorbic acid from wrapper into cheese. Food Research 19: 20, 28, 1954.

(4) MELNICK, D., LUCKMANN, F. H., AND GOODING, C. M.: Sorbic acid as a fungistatic agent for foods. 5. Resistance of sorbic acid in cheese to oxidative deterioration. 6. Metabolic degradation of sorbic acid in cheese by molds and the mechanism of mold inhibition. Food Research 19: 33, 44, 1954.

(5) SMITH, D. P., AND ROLLIN, N. J.: Sorbic acid as a fungistatic agent for foods. 7. Effectiveness of sorbic acid in protecting cheese. Food Research 19: 59, 1954.

(6) SMITH, D. P., AND ROLLIN, N. J.: Sorbic acid as a fungistatic agent for foods. 8. Need and efficacy in protecting packaged cheese. Food Tech. 8: 133, 1954.

(7) KRAYBILL, H. R., AND DUGAN, L. R., JR.: Antioxidants. New developments for food use. J. Agric. & Food Chem. 2: 81, 1954.

(8) HANNING, F., RICE, L. M., SHANDS, J. A., BATTERMAN W., AND BRAY, R.: Antioxidants in the home preservation of foods. J. Home Econ. 45: 660, 1953.

(9) LINEWEAVER, H., ANDERSON, J. D., AND HANSON, H. L.: Effect of antioxidants on rancidity development in frozen creamed turkey. Food Tech. 6: 1, 1952.

(10) HANLEY, J. W., EVERSON, C. W., ASHWORTH, L. Q., AND MORSE, R. E.: Antioxidant treatment for bacon. Food Tech. 7: 429, 1953.

(11) Cold sterilization nearer. J. Agric. & Food Chem. 2: 219, 1954.

(12) DUGAN, L. R., JR., KRAYBILL, H. R., IRELAND, L., AND VIBRANS, F. C.: Butylated hydroxyanisole as an antioxidant for fats and foods made with fat. Food Tech. 4: 457, 1950.

(13) BENTZ, R. W.: Antioxidants for food papers. Modern Packaging 27: 141 (Sept.), 1953.

(14) SEDKY, A., STEIN, J. A., AND WECKEL, K. G.: Efficacy of added ascorbic acid in the control of discoloration of kraut. Food Tech. 7: 67, 1953.

(15) ROSS, E., BARTLETT, D. S., AND HARD, M. M.: An application of oxidation-reduction potentials to frozen fruits treated with ascorbic acid and ascorbic-citric acid mixtures. Food Tech. 7: 153, 1953.

(16) DAWSON, E. H., HAMMERLE, O. A., AND SMITH, M.: Home processing of frozen and canned apple slices. J. Home Econ. 45: 663, 1953.

(17) DAWSON, E. H., GILPIN, G. L., WARREN, H. W., AND TOEPFER, E. W.: Canning snap beans: precooked and raw pack. J. Home Econ. 45: 165, 1953.

(18) VANDUYNE, F. O., OWEN, R. F., WOLFE, J. C., AND CHARLES, V. R.: Effect of cooking vegetables in tightly covered and pressure saucepans. Retention of reduced ascorbic acid and palatability. J. Am. Dietet. A. 27: 1059, 1951.

(19) EHRENKRANZ, F., ROBERTS, H., AND ROSS, E. S.: Stored foods in a home freezer operated at fluctuating temperature. J. Home Econ. 44: 441, 1952.

(20) DAWSON, E. H., HARRIS, B. L., AND ALEXANDER, S.: Sweetening agents for frozen strawberries. J. Home Econ. 44: 351, 1952.

(21) NOBLE, I., AND WINTER, J. D.: Is blanching necessary when vegetables are to be kept in frozen storage a month or less? J. Home Econ. 44: 33, 1952.

(22) PAUL, P. C., COLE, B. I., AND FRIEND, J. C.: Precooked frozen vegetables. J. Home Econ. 44: 199, 1952.

(23) DAWSON, E. H., HAMMERLE, O. A., AND TRIMBLE, P.: Home-frozen French-fried potatoes. J. Home Econ. 44: 36, 1952.

(24) CHARLES, V. R., AND VANDUYNE, F. O.: Effect of freezing and freezer storage upon quality of baked rolls, brown-and-serve rolls and shaped roll dough. Food Tech. 7: 208, 1953.

(25) MEYER, B., MOORE, R., AND BUCKLEY, R.: Flavor deterioration in frozen cake batters. Food Research 18: 70, 1953.

(26) HANSON, H. L., CAMPBELL, A., AND LINEWEAVER, H.: Preparation of stable frozen sauces and gravies. Food Tech. 5: 432, 1951.

(27) HAY, P. P., HARRISON, D. L., AND VAIL, G. E.: Effects of a meat tenderizer on less tender cuts of beef cooked by four methods. Food Tech. 7: 217, 1953.

(28) PAUL, P. C., AND LANGWORTHY, K.: Acceptability of monosodium glutamate in frankfurters and pork sausage. J. Home Econ. 44: 284, 1952.

(29) NORTON, K. B., TRESSLER, D. K., AND FARKAS, L. D.: The use of monosodium glutamate in frozen foods. Food Tech. 6: 405, 1952.

(30) WEGNER, E. S., JORDAN, R., AND HOLLENDER, H. A.: Homogenized and nonhomogenized milk in the preparation of selected food products. J. Home Econ. 45: 589, 1953.

(31) JORDAN, R., WEGNER, E. S., AND HOLLENDER, H. A.: The effect of homogenized milk upon the viscosity of cornstarch puddings. Food Research 18: 649, 1953.

(32) KRAMER, M. A., AND SUNDERLIN, G.: The gelation of pectin in uncooked jam from frozen red raspberries and strawberries. J. Home Econ. 45: 243, 1953.

(33) CHARLEY, H.: Effects of the size and shape of the baking pan on the quality of shortened cakes. J. Home Econ. 44: 115, 1952.

(34) WEISS, G. S.: Time and money costs of meals using home- and prekitchen-prepared foods. J. Home Econ. 46: 98, 1954.

## Don't Let Food Become a Domineering Tool

Food is "tied to our inner lives. When it fails to appeal, the young become behavior problems; the old feel querulous and persecuted; and the middle aged have resentment against their fellow men."

Speaking before the American Home Economics Association, Dr. Jennie Rowntree, University of Washington, pointed out that people of all ages wish to make their own food choices and resent domination and restriction. She warned that homemakers must not dictate the food choices of aging parents or of their husbands. They must not let fear of obesity and its dangers to the liver, blood vessels, and life expectancy cause them to dominate their husbands' meals, "or worse, make themselves awful to live with by drastically restricting their own diets."

# Dietary Regimen Following Partial Gastric Resection[1]

**MARTHA N. LEWIS, MARGARET ANN MURRAY[2], and ROBERT M. ZOLLINGER, M.D.**

*Departments of Dietetics and Surgery, Ohio State University Hospital, Columbus*

EXPERIENCE and a survey of the literature have made apparent a general awareness of the fact that a sequelae of symptoms associated with the ingestion of food and resulting in a failure to gain weight frequently follow subtotal gastrectomy (1–5). Zollinger and Hoerr (6) stated that from 5 to 25 per cent of patients who have had gastric operations have complaints about the ingestion of food. Subsequently, a study of the nutritional status of post-gastrectomy patients was undertaken by the Departments of Surgery and Dietetics at the Ohio State University Hospital, the results of which will be reported in a series of papers.

## THE OUT-PATIENT STUDY

Early in 1951, an interim appraisal was conducted of patients having had subtotal gastric resections for ulcer during the period between January 1946 to January 1950. Patients were requested to come to the hospital Out-Patient Clinic on a given date for examination by the attending surgeon and an interview by the dietitian.

### *Procedure*

Eighty-three patients were interviewed personally or by letter and questionnaire. Interviews were conducted in the manner of an informal conversation. In an effort to obtain orderly, consistent information, a prearranged list of pertinent questions was used as a guide. Responses to the questionnaire presented a picture which varied little if at all from that obtained in personal interviews; therefore, all are presented together in this report.

### *Findings*

Of these eighty-three out-patients, sixty-seven were men and sixteen were women. Ages varied from twenty-four to seventy-eight years; more than half were in their fifties at the time of surgery. Occupations were varied and included teaching, interior decorating, truck driving, farming, and homemaking.

Of the patients, 85 per cent reported they had good appetites; approximately 50 per cent lay down regularly after meals during the first six months following surgery, but few reported this practice later than six months.

Of the forty-four patients who had undergone surgery less than a year before the interview, 92 per cent reported a sense of fullness and distention associated with the ingestion of food. Only 33 per cent of the thirty-nine patients who had been operated on more than a year previous to the interview reported this feeling of uneasiness.

Discomfort associated with the ingestion of food was reported by approximately 25 per cent of all cases reviewed. A majority of the patients revealed that it had been necessary to learn anew what foods could be eaten, how much, and how often. Some attributed distress to the quantity of food eaten, and approximately 50 per cent believed sweets, rich desserts, and concentrated foods caused uneasiness. In some instances, the inability to tolerate sweets diminished as the span of years since surgery increased.

These post-gastrectomy patients presented a general picture of marked leanness and expressed a great concern for their inability to regain preoperative weight. Table 1 shows the weight loss or gain of the 83 patients divided into those having had surgery less than a year before and those with post-surgery time ranging from one to five years. It is interesting to note that of the 44 patients reviewed

---

[1] The data reported here are from a thesis presented by Margaret Ann Murray in partial fulfillment of the requirements for the degree of Master of Science. Received for publication February 17, 1954.

[2] Present address: Therapeutic Dietitian, Hartford (Connecticut) Hospital.

TABLE 1

*Weight picture of post-gastrectomy patients*

| WEIGHT SITUATION | PATIENTS WHO UNDERWENT SURGERY LESS THAN A YEAR EARLIER | | PATIENTS WITH SURGERY PERFORMED 1 TO 5 YEARS EARLIER | |
|---|---|---|---|---|
| | Number of patients | Average change | Number of patients | Average change |
| | | *lb.* | | *lb.* |
| Gain | 27 | 11 | 24 | 13 |
| Constant | 3 | — | 1 | — |
| Loss | 14 | 10 | 14 | 25½ |

one year or less since surgery, 27 (61 per cent) had gained while 14 (32 per cent) had lost weight. Of the 39 patients whose surgery had been performed one to five years previously, 61 per cent had gained and 36 per cent had lost. While the majority had gained, there was a wide range of weight variation, as illustrated in Figure 1. Among those who gained, none exceeded his expected or ideal weight, even though he had gained from 1 to 25 lb. since surgery.

An analysis of the dietary intakes reported indicated that approximately 25 per cent were inadequate in one or two essentials, and another 25 per cent showed greater inadequacies. Over half of the patients commented that diet was important, yet data showed that diet had not been as effective, therapeutically speaking, as it might have been had the patient understood its principles and applied them to a greater extent.

The results of this study, coupled with the paucity of data concerning an accepted program for dietary management following gastric resection, stimulated an investigation of the immediate postoperative diet therapy commonly followed during hospitalization. The results of the in-patient study follow.

## THE IN-PATIENT STUDY

The dietary management of twenty-six patients having undergone gastric resection was observed during an eight-month period from December 1950 through July 1951. Records were kept of the kind and amount of food offered and the degree of acceptance and individual reactions.

Of these patients, 73 per cent had undergone surgery because of ulcers which were intractable to medical treatment, 8 per cent had the pre-operative diagnosis of chronic hypertrophic gastritis, 8 per cent had duodenal obstruction, and 11 per cent had undergone gastrectomy due to the presence of a gastric neoplasm. The percentage resection varied from a low of 60 to a high of 90 per cent. Seventy-five per cent of the patients studied had resections between 80 and 85 per cent.

### *Observations*

The postoperative dietary management of the 26 patients varied. Six were fed orally beginning on the third postoperative day, 10 were fed orally on the fourth, 7 patients were eating on the fifth, and 3 patients began oral feeding on the sixth postoperative day.

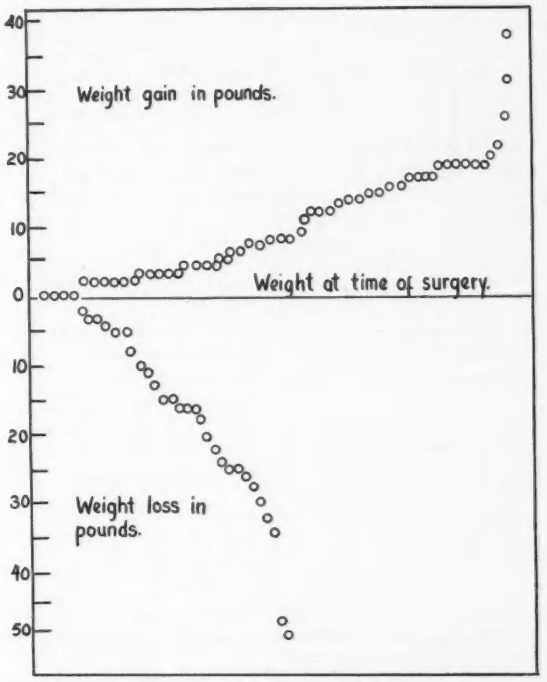



FIG. 1. *Weight change of eighty-three patients, one to five years after gastric resection. (Each dot represents one individual.)*

Tea, or tea and broth usually had been given the day feeding was resumed, and the routine "full-liquid diet" was presented the next day. This diet included a variety of milk drinks, eggnogs, soups, fruit juices, soft custards, and gelatin desserts. Each meal consisted of approximately 24 oz. fluid with a daily total of approximately 34 to 45 gm. protein, 125 gm. carbohydrate, and an energy value of 1000 calories. After several days on the full-liquid diet, patients were served a bland diet.

The liquid diet was poorly received and, in many cases, the meal was returned after only half of the food had been consumed. Some patients consumed only small quantities because they experienced a feeling of fullness. Others ate well and then complained of cramping pains, "sweating," and a desire to lie quietly until the sensations of uneasiness had passed. This sequence of events resulted in the patient becoming increasingly apprehensive about the nature and amount of food he could eat.

In studying the patients' response to food, it was observed that such a feeding program was not well suited to most post-gastrectomy patients; the volumes were too great and specific foods (cold and sweet liquids) were incriminated as causing distress.

TABLE 2

*A sample regimen for post-gastrectomy feeding*

| BREAKFAST | NOON | 3 P.M. | EVENING | 9 P.M. |
|---|---|---|---|---|
| **Sample Menus for First Day or Two of Feeding*** | | | | |
| Refined cereal, 3 oz.<br>Cream, 2 oz.<br>Sugar, 1 tsp.<br>Milk, 4 oz. | Cream soup, 3 oz.<br>Crackers, 2<br>Butter, 1 tsp.<br>Baked custard, 3 oz.<br>Cream, 1 oz.<br>Milk, 4 oz. | Milk or<br>Eggnog, 4 oz. | Poached egg on<br>Toast<br>Fruit purée<br>Milk, 4 oz.<br>Cream, 1 oz. | Milk or<br>Eggnog, 4 oz. |
| Add the following as rapidly as the tolerance of the individual patient will permit, keeping the emphasis on adding protein and calories while keeping volume down; meat, fish, chicken, cream and cottage cheese, peanut butter, eggnogs, high-protein milk, custards and puddings, rice, potatoes, noodles, soft cooked vegetables, fruit and fruit juices, plain cake and cookies, gravies and sauces, and moderate amounts of spices and condiments to make food flavorful. | | | | |
| **Sample Menus for Fifth or Sixth Day** | | | | |
| Orange juice, 4 oz.<br>Poached egg on<br>Toast<br>Butter, 1 tsp.<br>Tea or milk, 4 oz. | Tender meat, fish or<br>chicken<br>Potatoes or rice with<br>Butter or<br>Gravy<br>Soft cooked vegetable<br>Fruit or custard<br>Milk, 4 oz. | Eggnog, 6 oz.<br>Crackers (2) with<br>Peanut butter | Egg or<br>Cottage or cream cheese, or<br>Cream soup<br>Soft cooked vegetable or<br>Baked potato (no skin)<br>Fruit or pudding<br>Bread and butter<br>Milk, 4 oz. | Milk, 6 oz.<br>Custard, 3 oz. |

* Feedings are started as soon as gastric motility has been restored. This varies with the individual, from the third to the fifth postoperative day.

Milk taken directly from the refrigerator was objectionable, yet warm milk was well tolerated. Frequently the patients found that concentrated sweets and highly concentrated milk beverages precipitated distress.

These observations, together with the results of the survey of out-patients, demonstrated the need for a feeding program which would more nearly meet the requirements of post-gastrectomy patients and allow for flexibility in application. Information is afforded in the literature (7) to the effect that patients well nourished postoperatively rehabilitate more effectively, have lesser incidence of complications, and are more quickly ambulatory and ready for discharge.

### A NEW POST-OPERATIVE ROUTINE

In making adjustments of the diet as a result of this close follow-up of post-gastrectomy patients, a new postoperative regimen was gradually developed. Instead of the routine of tea three times a day, progressing through the clear-liquid and the full-liquid diets, the proposed dietary regimen consisted of five feedings of foods low in volume, concentrated in food value, and of a temperature and consistency to prevent discomfort. A sample regimen is presented in Table 2. This regimen was in contrast to the previous full-liquid diet in that eggs, custards, and soft foods were used instead of liquid foods. The total volume at a feeding started with approximately 10 oz. and was increased gradually. Various foods which previously had been empirically omitted were given trial.

The chief limitation of this immediate postoperative feeding plan, in addition to the concentration and limitation of volume, was the omission of roughage. Foods seasoned by spices and condiments were well accepted by patients who had previously avoided all chemically stimulating foods in an effort to keep within the limits of a bland diet. Cream and butter, gravies and sauces were used to increase the calories and improve the palatability. Careful observation to detect manifestations of distress were made, and particular note taken of the meal at which any degree of disturbance occurred.

### DISCUSSION OF RESULTS

Speculations have been many as to the causes of symptoms which follow the ingestion of the food after gastric resection. Zollinger and Hoerr (6) thought that perhaps they were attributable to a diet rich in carbohydrates. Schmidt (8), in making observations concerning the postoperative diet, said: "Liquid carbohydrates of high glucose content which often appear on the hospital liquid diet are important sources of distending gases." This survey of our patients demonstrated a poor acceptance of the full-liquid diet; 18- to 24-oz. feedings of high-carbohydrate liquid foods resulted in many refusals to consume the total nourishment, due to the discomfort experienced following such feedings.

Little or no distress resulted from the limited intake of weight and volume offered in the new progressive plan. On the first day of oral feedings (third to fifth postoperative day), the mean weight of food intake was 10 to 12 oz. each meal with supplemental feedings of 4½ to 6 oz. Careful observation of the individual patients' responses to feeding indicated that soft to regular foods relatively low in carbohydrates and moderately concentrated in caloric value were well accepted in the early stages.

Calculated oral intakes ranged on the first day of feeding from 700 to 1324 calories, while the protein intakes varied from 35 to 50 gm. The average caloric intake for the patients was 1034, and the protein intake, 44 gm. A marked difference in actual food intake was recorded, as the acceptance of the new progressive plan was considerably greater than that of the former routine. Records of dietary intakes showed that patients on the old routine ate from one-third to one-half (17 gm. protein and 500 calories) of the total liquids presented, and then were not ready for the bland diet when it was offered. In contrast, many patients on the new regimen consumed all food offered each day and by the tenth postoperative day of feeding, were receiving 80 gm. protein and 2200 calories.

The outstanding results of this feeding program were the increased intake of food and an absence of distress following meals. The general picture was that of comfort, enjoyment of food, and an interested anticipation of what the next feeding would provide. Individual attention may have been partially responsible for the favorable response observed when different foods appeared on the trays. It was obvious that a sense of well-being was forthcoming when these patients realized that the surgical intervention had not impaired their ability to enjoy food.

All of the patients were visited daily by the dietitian and came to expect and look forward to these instruction periods. This careful patient follow-up lent itself to building good rapport between the patient and the dietitian and this, in turn, seemed to have a worthwhile effect on the attitude of the patient toward his surgery and toward life after hospital discharge. Patients became less apprehensive about their food and welcomed the opportunity to discuss their menu plans, asked for lunch box ideas, and other suggestions to eliminate or avoid future problems.

Dietary instructions were not meant to be psychologically crippling, but were aimed at erasing doubts and offering help to the patient who wanted to know something about the food he could eat when the responsibility for meal planning rested on him or some member of his family.

The influence of nutrition on mortality and morbidity in various surgical disorders has gained universal recognition today (9, 10). In the present study, the early return to a nutritionally adequate diet by well-tolerated progressive feedings and the importance of restoring confidence in these particular individuals in their ability to eat again were felt to be of paramount worth.

Studies of the nitrogen and fat utilization of these post-gastrectomy patients have been made and will appear in a subsequent paper.

REFERENCES

(1) Culver, P. J.: The dumping syndrome. M. Clin. North America, Mass. Gen. Hosp. No. 33: 1321, 1949.

(2) Glaessner, C. L.: Hyperglycemic shock. Rev. Gastroenterol. 7: 528, 1940.

(3) Ingelfinger, F. J.: The late effects of total and subtotal gastrectomy. New England J. Med. 231: 321, 1944.

(4) Jones, C. M., Culver, P. J., Drummey, C. D., and Ryan, A. E.: Modification of fat absorption in digestive tract by the use of emulsifying agent. Ann. Int. Med. 29: 1, 1948.

(5) Rekerz, P. E., Pack, G. T., and Rhoads, C. P.: Metabolic studies in patients with cancer of the gastrointestinal tract. 6. Disorders in alimentary digestion and absorption in patients who have undergone total gastrectomy for carcinoma of the stomach. Surgery 14: 197, 1943.

(6) Zollinger, R. M., and Hoerr, S. O.: Gastric operations, troublesome postoperative symptoms with special reference to carbohydrate ingestion. J.A. M.A. 134: 575, 1947.

(7) Rhoads, J. E.: Protein nutrition in surgical patients, symposium of utilization of protein. Federation Proc. 11: 659, 1952.

(8) Schmidt, F. C.: Observations concerning the postoperative diet. J. Am. Dietet. A. 24: 750, 1948.

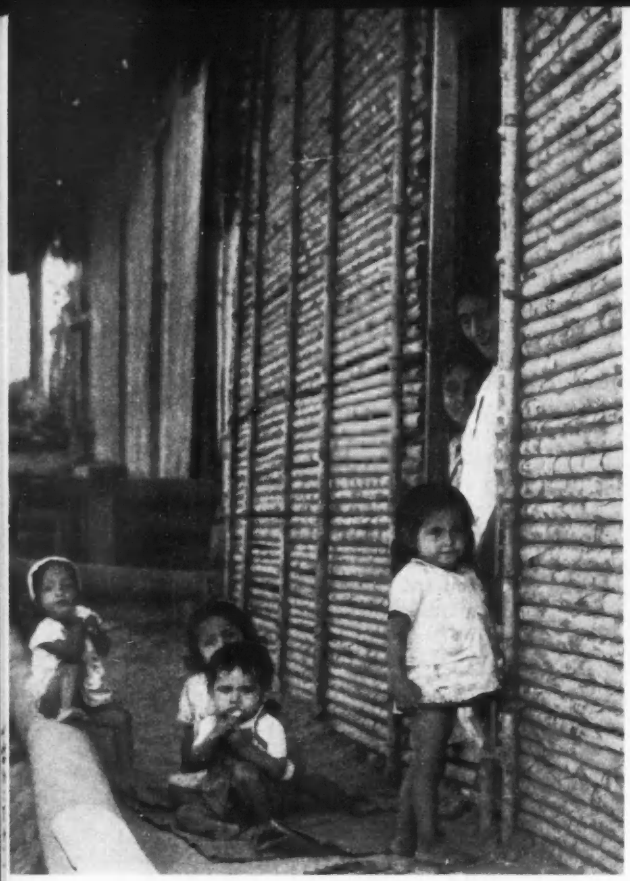
(9) Zollinger, R. M., Ellison, R. H., and Case, C. T.: Practical aspects of nutrition in surgical patients. Pennsylvania M. J. 53: 337, 1950.

(10) Cutler, E. C., and Zollinger, R. M.: Preoperative and postoperative care. *In* Atlas of Surgical Operations. 2nd ed. New York: MacMillan Company, 1949, chap. 3.

### *Chemical Mechanisms Affect Milk Flavor*

The two main flavor problems with milk are prevention of off-flavors and retention or development of characteristic flavors. Recently dairy researchers have been concerned with the exact chemical mechanisms involved.

At the spring meeting of the American Chemical Society, D. V. Josephson of The Pennsylvania State University, reported, in his Borden Award address, that photolysis of methionine has been shown to be responsible for "sunlight" flavor in milk; heat denaturation of beta-lactoglobulin, for "cooked" flavor; and decomposition of lactose and formation of furan compounds, for "caramelized" flavor. The "cowy" flavor results from secretion of acetone bodies in the milk.



# Dietary Surveys in Peru

## II. Yurimaguas, A Jungle Town on the Huallaga River[1]

**HILDA S. WHITE, Ph.D., CARLOS COLLAZOS, Ch., M.D., PHILIP L. WHITE, Ph.D., RUTH L. HUENEMANN, D.Sc.,[2] ROSA BENITES, AURORA CASTELLANOS, YOLANDA BRAVO, IRMA MOSCOSO, and AIDA DIESELDORFF[3]**

*Department of Nutrition, Ministry of Public Health, Lima, Peru; Foreign Operations Administration, Institute of Inter-American Affairs, Division of Health and Sanitation, Lima, Peru;* and *the Department of Nutrition, Harvard School of Public Health, Boston, Massachusetts*

TO THE east of the Andes Mountains, lies the jungle, which comprises approximately 60 per cent of the total land area of Peru. The town of Yurimaguas is situated in the western part of this region, not far from the eastern slopes of the mountains. It occupies about 2 sq. mi. with an extension of almost 1½ mi. along the banks of the Huallaga River, a tributary of the Amazon River. It has a population of between 8,000 and 10,000 people, the great majority of whom are "mestizos," or of mixed Spanish and Indian blood.

Yurimaguas is a typical river town. Imports and exports even from the coast of Peru arrive, after having been taken around the Straits of Magellan and the entire South American continent, by boats which ply the Amazon River. The river also provides means of local transport; many of the inhabitants own *chacras*, or farm lands, some distance from the town and travel by dug-out canoe to cultivate their fields and bring home the produce. The river, with its abundance of fish, is an important source of food. Some families obtain water for household use from the river, and many women do their laundry on its banks.

A survey made in 1950 (1) showed that there was no public water supply. Most of the population was served from shallow wells located throughout the town, only 3.8 per cent being served by a public sewage disposal system. Ninety-five per cent of the homes were without sanitary facilities. Twelve per cent of the houses had electricity; the remainder depended on kerosene for lighting purposes. There

[1] This work was supported in part by grants to the Department of Nutrition, Ministry of Public Health, Lima, Peru, from the United Nations International Children's Fund (UNICEF) and the Food and Agriculture Organization of the United Nations (FAO); and by a contract (No. IAAC-32) between the Institute of Inter-American Affairs of the Foreign Operations Administration and Harvard University.

[2] Present address: School of Public Health, University of California, Berkeley.

[3] With the technical assistance of Angelica Loo, Cesar Dias, Eduardo Viñas, Enrique Alvistur, and Carmen Caceres.

The authors wish to express their appreciation to the entire staff of the Yurimaguas hospital for its cooperation and interest in the dietary surveys. They are especially grateful to Dr. Alejandro Sotelo, Hospital Director, and to Dr. Luis Chaparro, Assistant Physician, for assisting in the conduct of the physical examinations; to the nurses aides and the sanitary engineer who helped in "mapping" the town and who served as interviewers during the surveys; to the laboratory technicians who helped in the hematologic analysis and who made the parasite counts. They wish to thank the Bishop of Yurimaguas for permission to use the Hospital Santa Gema, a centrally situated dispensary, for the physical examinations; Dr. Abel Guerra, for doing the dental examinations; and Carlos Uriarte, for statistical help in the selection of the sample.

has been little change since 1950 with respect to general living conditions.

Although in the center of the town there are houses constructed of brick or adobe, more than 75 per cent of the houses are built of a bamboo-like wattle, have dirt floors, and are roofed with palm leaves. At the time of the survey mentioned above, occupancy per house averaged six persons. The majority of the houses have two to three rooms. The kitchen is generally in a smaller building adjacent to the main house or is a "lean-to" at the rear. The cooking unit is usually of bricks or stones placed on the floor; waist-level cooking units of adobe or kerosene stoves were encountered infrequently.

Streets away from the center of town are ill-defined paths of grass or dirt. Only in the central plaza are the streets paved. The terrain of the town is rough and hilly and is broken by many *quebradas* or deep gullies.

There is rain throughout the year, but the true rainy season begins in December and extends through May. One of the two dietary surveys was made at the end of the rainy season, the other at the end of the dry season. The average yearly temperature of Yurimaguas is about 25°C. (77°F.).

## METHODS

For the surveys, 10 of the town's 118 blocks were chosen at random. From each of the 10 blocks, 4 households were picked at random to give a sample of 40 families (data from 2 of these had to be discarded later). The sample represented approximately 3 per cent of the total number of families, assuming a population of 8000 and an average of 6 persons per family or household. The second survey included 33 of the original families. In many of the families the number of persons living and eating in the house during the second survey was different from that found during the first survey.

The methods employed in conducting the dietary surveys have been described in a previous publication (2). Each family was visited one or more times a day for seven consecutive days, and a complete record of all food consumed by the family, together with weights and/or prices, was obtained. Methods of food preparation were noted, and records were made of the types of dishes served. Food intake was interpreted in terms of nutrient intake employing the table of food composition prepared by the Department of Nutrition, University of San Marcos, Lima (3); calculations were based on fresh weights. Nutrient intakes were compared with recommended intakes, using tables prepared by the Instituto de Nutrición de Centro América y Panamá (INCAP) (4). Since it was impossible to conduct individual activity studies, caloric allowances for the "reference man or woman" were employed. For the few adults for whom weights were not obtained, the nutrient allowances for a 60-kg. man and a 50-kg. woman were used, these being the average weights of the adults of the families studied. In addition to the family dietary study, an individualized study on the nutrition and care of young children was conducted during the May survey (5).

**Field worker gathering dietary data from a father who is a tailor.**

During the first survey, all of the young children included in the individual study mentioned above, 30 adolescents (boys and girls between the ages of 12 and 16 years), 13 pregnant and lactating women, and 10 normal (non-pregnant and non-lactating) adult women received physical examinations. Venous blood samples were taken from all except the young children. The samples were heparinized; hematologic analysis was made in Yurimaguas, and the plasma was separated and stored in the cold pending shipment to Lima for additional analyses. All subjects were requested to bring fecal samples for analyses for parasites. Dental examinations of all subjects were made. During both surveys, heights and weights were obtained.

The daily dietary records were studied, and samples of all foods not previously analyzed or which were being eaten in large quantities were obtained. The samples were stabilized in Yurimaguas and shipped to Lima for analysis. Fifty-two samples were collected during the first survey and twenty during the second.

## FINDINGS

### FAMILY COMPOSITION

The 38 families of the first survey included 229 persons; the 33 families of the second, 212 persons, giving averages of 6 and 6.4 members per family. This variation was not as great as in the coastal population studied (2). Two-thirds of the families in both surveys had 6 or fewer members; 42 per cent had 4 to 6 members. There was an almost equal distribution of the sexes among the family members.

Age distribution indicated a young population; 78 per cent were less than 31 years old; 72 per cent,

less than 26 years; and 66 per cent, less than 21 years old. About 6 per cent of the family members were more than 50 years of age.

### FOOD CONSUMPTION AND MEAL PATTERNS

Table 1 lists the foods consumed by 25 per cent or more of the families, except for garlic and other condiments consumed in small amounts, during one or both of the dietary surveys. Although the variety of foods was great, many were consumed in quantities averaging less than 100 gm. daily per family.

TABLE 1

*Foods consumed by 25 per cent or more of the Yurimaguan families in one or both of the surveys*

| FOOD | SURVEY I—MAY 1952 (38 families) | | SURVEY II—DECEMBER 1952 (33 families) | |
|---|---|---|---|---|
| | Families consuming | Average consumption* | Families consuming | Average consumption* |
| | % | *gm./day/family* | % | *gm./day/family* |
| Milk, fresh | 11 | 650 | 30 | 390 |
| Eggs | 58 | 60 | 58 | 100 |
| Meat | | | | |
| Chicken | 58 | 225 | 55 | 170 |
| Pork | 45 | 175 | 67 | 165 |
| Beef | 61 | 160 | 64 | 165 |
| *Chicharron* (cracklings) | 16 | 40 | 30 | 15 |
| Sausage | 18 | 30 | 27 | 45 |
| Liver (beef, pork, deer) | 26 | 70 | 27 | 70 |
| All meats (exclusive of fish) | 92 | 450 | 100 | 400 |
| Fish | | | | |
| Fresh | 95 | 310 | 52 | 150 |
| Dry | 47 | 185 | 91 | 260 |
| Beans, dry | 90 | 375 | 97 | 450 |
| Potatoes | 26 | 130 | 6 | 200 |
| Yuca | 87 | 470 | 91 | 910 |
| Onions | 84 | 50 | 85 | 45 |
| *Caigua* | 26 | 150 | 27 | 75 |
| Pepper, hot | 37 | 20 | 42 | 25 |
| Cabbage | 52 | 50 | 27 | 40 |
| Tomato | 50 | 75 | 15 | 15 |
| Avocado | 26 | 135 | 39 | 135 |
| Bananas | | | | |
| Green (plantains) | 100 | 1910 | 100 | 2340 |
| Ripe | 34 | 280 | 39 | 335 |
| *Guineo* | 32 | 230 | 24 | 130 |
| All classes | 100 | 2080 | 100 | 2500 |
| Limes | 29 | 45 | 24 | 15 |
| Oranges | 58 | 250 | 27 | 325 |
| Papaya | 11 | 280 | 27 | 260 |
| Bread | 87 | 165 | 79 | 200 |
| Corn, dry | 24 | 65 | 36 | 80 |
| Flour, wheat | 26 | 25 | 18 | 25 |
| Noodles | 55 | 45 | 55 | 55 |
| Rice | 100 | 460 | 94 | 400 |
| *Chancaca* (crude brown sugar) | 81 | 270 | 91 | 110 |
| Sugar, white | 42 | 245 | 39 | 200 |
| Fats and oils | 100 | 75 | 94 | 90 |
| Coffee | 87 | 30 | 91 | 30 |
| Tea | 34 | 5 | 61 | 10 |
| Salt | 100 | 115 | 87 | 60 |

* Weight of edible portion; averages were calculated considering only the number of families listing each item.

Total milk and egg consumption was low; meat and fish were eaten in large quantities. Meat consumption, exclusive of fish, but including tripe, organ meats, dried and fresh meats, averaged between 400 and 450 gm. per day per family, or approximately 70 gm. daily per person. In both surveys, meats were supplemented by fish, fresh and dried. During the first survey, 95 per cent of the families included fresh fish and 47 per cent, dried fish. Only 52 per cent consumed fresh fish during the second survey, while 90 per cent of the families included dried fish. Fishing was poor in December at the time of the second survey. In anticipation of the reduced availability of fresh fish during this period, a great quantity of fish was dried and salted during the months when fish were more abundant.

Beans, rice, bread, and sugar were consumed in large amounts during both studies. *Chançaca*, a cheap, partially refined sugar sold in cake form, was used much more than was white sugar. Yuca (*Manihot utilissima*), a fibrous tuber, was another basic food in the Yurimaguan diets, being consumed in large amounts during both surveys. Since potatoes and sweet potatoes do not grow well in the jungle, their use was more limited than on the coast (2).

Vegetables and greens occupied only a minor place in the diets. Only *caigua* (*Cyclanthera pedata*), a pepper-like vegetable, was eaten in amounts averaging more than 100 gm. per day per family; however, it appeared in only 27 per cent of the family dietary records. Vegetable production in the jungle is poor, for the soil does not support good growth of the ordinary garden-type food plants (6).

Fruit consumption in Yurimaguas was much greater than in any of the other sites in which surveys have been made. Particularly prominent was the plantain or cooking banana (*Musa paradisiaca*),

TABLE 2

*Comparison of actual with recommended intakes*

| NUTRIENT | FAMILIES | | | | | |
|---|---|---|---|---|---|---|
| | Poor (less than 75 per cent of recommendation) | | Fair (75 to 100 per cent recommendation) | | Good (more than 100 per cent recommendation) | |
| | Survey I | Survey II | Survey I | Survey II | Survey I | Survey II |
| | % | % | % | % | % | % |
| Calories | 34 | 33 | 29 | 24 | 37 | 42 |
| Protein | 32 | 24 | 18 | 21 | 50 | 55 |
| Calcium | 76 | 85 | 11 | 9 | 13 | 6 |
| Iron | 3 | 6 | 18 | 9 | 79 | 85 |
| Vitamin A | 3 | 9 | 5 | 6 | 92 | 85 |
| Thiamine | 50 | 24 | 11 | 27 | 39 | 48 |
| Riboflavin | 71 | 52 | 13 | 18 | 16 | 30 |
| Niacin | 5 | 9 | 26 | 18 | 69 | 73 |
| Ascorbic acid | 13 | 6 | 21 | 12 | 66 | 82 |

which is sometimes called the "bread of the jungle." Plantains were eaten by 100 per cent of the families in both surveys in average quantities approximating 2 kg. per day per family.

In general, the typical Yurimaguan diet consisted of meat, fish, beans, rice, yuca, and plantains. Consumption of vegetables and greens was minimal, as was that of milk, eggs, and fruits other than plantains.

The families of Yurimaguas observed a three-meals-a-day pattern. Breakfast was more substantial than the typical breakfast of coffee and bread noted among the coastal populations (2). Meat, fish, or eggs were eaten in addition to bread and a beverage (coffee or tea) in 35 per cent of the morning meals. Plantains—usually broiled—were included in more than 75 per cent of the breakfast menus.

Lunch was the most substantial meal. Soups, made with yuca and beef, chicken, or fish, were part of 50 per cent of the noon menus. There was great variety in the other dishes served. A combination of rice and beans was prepared for more than 50 per cent of the lunches. Meat and fish, prepared in a number of ways, exclusive of that used in soups, were included in 55 per cent of the noon meals. Plantains—usually boiled—were used in almost all the lunches. The common practice in Yurimaguas was to prepare enough food at noon to serve for the evening meal, although additional plantains were cooked in the evening. Salads, separate vegetable dishes, fruits other than plantains, bread, and beverages were used infrequently for either the noon or evening meal.

## NUTRIENT INTAKES AND ALLOWANCES

The average daily family intakes of the nutrients and the recommended standards for each family were calculated as described above. Nutrient intakes for each family were expressed as the percentages of the recommended amounts. The families were divided into three groups with respect to each nutrient: those consuming less than 75 per cent of the recommendations; those with intakes between 75 and 100 per cent; and those with more than 100 per cent. Although this division is arbitrary, the three groups have been classified as "poor," "fair," and "good," respectively. Table 2 shows the percentage of the families falling in each of the three groups with respect to each nutrient during both surveys.

Calcium was the nutrient consumed in least adequate amounts. More than 75 per cent of the families were classified as "poor" during both surveys. Seventy-one and 52 per cent of the families during the first and second survey, respectively, had less than 75 per cent of the recommended amount of riboflavin. Half of the families had "poor" intakes of thiamine during the first survey, but only 24 per cent fell into this group during the second. About one-third had less than 75 per cent of the recommendations for protein and calories; there was little change between the first and second surveys. Intakes of iron, vitamin A, niacin, and ascorbic acid were high; two-thirds or more of the families consumed 100 per cent or more of the recommended amounts.

The total quantity of those foods consumed by 25 per cent or more of the families during the first survey (Table 1) was averaged in terms of grams per day per family. The nutrient contributions from each food and their sums were calculated and are shown in Table 3. For purposes of comparison, the average daily recommendations per family are also shown. This "typical" or "average" Yurimaguan diet shows which foods were the most important sources of each nutrient and offers a partial explanation for the results shown in Table 2.

Compilation of the data from the December survey in like manner resulted in an "average" diet qualitatively similar to that of the first survey. However, there were quantitative differences. There were an increased consumption of yuca, plantains, beans, and dried fish, and a decreased consumption of fresh fish, rice, and *chancaca* plus sugar. In the "typical" diets, plantains, which were consumed in quantities more than four times as great as the other commonly used foods, contributed: more than 70 per cent of the vitamin A; approximately one-third of the ascorbic acid, thiamine, riboflavin, and total calories; about 15 per cent of the niacin; and about 10 per cent of the iron and protein.

### *Calories*

A large proportion of the calories, apart from those derived from plantains, was contributed by beans, rice, yuca, sugar, and fats. Beans provided the largest single source of protein and iron and contributed significantly to the calcium, thiamine, and riboflavin intakes.

Forty-eight per cent of the total protein of the "average" diet was animal protein. This was in agreement with the average values of 51 $\pm$ 9.95 and 48 $\pm$ 4.76 per cent obtained when the percentage of animal protein in the individual family diets during the first and second surveys, respectively, was calculated.

In the two surveys, 76.0 $\pm$ 4.0 and 74.5 $\pm$ 5.6 per cent of the calories were derived from carbohydrate. Protein contributed 12.0 $\pm$ 4.4 and 12.3 $\pm$ 2.1 per cent, and fats 12.0 $\pm$ 4.8 and 12.9 $\pm$ 5.0 per cent of the total calories. These values were calculated using 4, 9, and 4 calories per gram for carbohydrate, fat, and protein, respectively.

### *Vitamins*

Adequate amounts of niacin were provided by the meats and fish, plantains, rice, and beans. Ascorbic acid intake was also "good"; more than adequate amounts were provided by three foods: yuca, plantains, and oranges.

The "average" diet for the first survey showed that a proportionate distribution of the principal foods could have provided 90 per cent of the recommended amount of thiamine. However, 50 per cent of the families were classified as "poor," indicating an unequal distribution of beans and plantains, the two foods providing more than 60 per cent of the total thiamine. During the second survey, only 24 per cent of the families were classified as "poor" with respect to this nutrient. Average thiamine intake of an "average" diet for this survey, determined by compilation similar to that used for Table 3, was 102 per cent of the average recommended amount. The increase in thiamine intake was accounted for by an increased use of beef, pork, beans, and plantains.

Although 30 per cent of the total riboflavin of the "average" diet (Table 3) was derived from plantains, this fruit could account for only 17 per cent of the average recommendation for this vitamin. Plantains could not compensate for the low consumption of milk and green vegetables.

### *Minerals*

No calcium-rich food was consumed in large amounts. When asked, the people said that fish bones were always removed. However, the small size of the fish and the fact that they had many fine, hard-to-remove bones, suggested that some of the smaller bones may have been eaten. The average of 130 mg. calcium per 100 gm. for eight species of fresh fish is higher than that reported for most fish—for example, those listed in Agriculture Handbook No. 8 (7). The calculated calcium intake was low and would have been lower if the calcium content of fish has been overestimated. The ratio between calcium and phosphorus in the "average" diet was 1:3.

Table 2 shows that the majority of families more than met the recommendations for iron. These findings must, however, be considered with qualifications since clinical examinations revealed that there was wide-spread anemia among the people of Yurimaguas. The anemia was undoubtedly related to the high incidence of intestinal parasitism. Iron needs under these conditions are without question greater than those of the healthy individual (8).

### FOOD COSTS

Employing normal market values to estimate the price of home-produced food, an average of approximately 80 cents (American) was obtained for the daily "cost" per family for food. Meat and its

TABLE 3

*Nutritive value of the "average" daily family diet, Survey I**

| FOOD | AVERAGE FAMILY CONSUMPTION | CALORIES | PROTEIN | FAT | CARBOHYDRATES | CALCIUM | PHOSPHORUS | IRON | VITAMIN A | THIAMINE | RIBOFLAVIN | NIACIN | ASCORBIC ACID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *gm./day* | | *gm.* | *gm.* | *gm.* | *mg.* | *mg.* | *mg.* | *I.U.*† | *mg.* | *mg.* | *mg.* | *mg.* |
| Chicken | 130 | 130 | 25.9 | 2.2 | — | 9 | 278 | 0.6 | — | 0.03 | 0.14 | 12.6 | — |
| Pork and beef | 180 | 297 | 33.3 | 17.6 | — | 26 | 399 | 3.2 | — | 0.75 | 0.26 | 10.9 | — |
| Fresh fish | 300 | 231 | 46.2 | 3.6 | — | 390 | 435 | 4.8 | — | 0.03 | 0.21 | 5.4 | — |
| Dried fish | 90 | 234 | 30.1 | 11.6 | — | 302 | 328 | 4.3 | — | 0.03 | 0.15 | 4.9 | — |
| Beans, dried | 335 | 1,100 | 70.7 | 5.0 | 204 | 366 | 1,440 | 31.1 | — | 1.51 | 0.90 | 7.0 | — |
| Yuca | 410 | 790 | 2.9 | 1.4 | 188 | 103 | 271 | 1.6 | 1,500 | 0.08 | 0.04 | 2.6 | 173 |
| Plantains | 2080 | 3,048 | 26.9 | 4.1 | 811 | 80 | 930 | 8.6 | 27,900 | 1.81 | 1.46 | 11.6 | 204 |
| Oranges | 150 | 58 | 0.9 | — | 16 | 45 | 51 | 0.2 | 1,000 | 0.11 | 0.04 | 0.4 | 101 |
| Bread | 140 | 448 | 12.5 | 1.3 | 98 | 45 | 153 | 2.7 | — | 0.18 | 0.15 | 1.7 | — |
| Rice | 460 | 1,535 | 36.3 | 2.3 | 352 | 37 | 557 | 8.3 | — | 0.50 | 0.55 | 11.5 | — |
| *Chancaca* and white sugar | 320 | 1,122 | — | — | 284 | 110 | 4 | 7.3 | — | — | — | — | — |
| Fats and oils | 75 | 675 | — | 75.0 | — | — | — | — | — | — | — | — | — |
| Other foods‡ | | 291 | 13.4 | 9.4 | 42 | 184 | 287 | 4.5 | 7,300 | 0.19 | 0.89 | 5.2 | 60 |
| Average daily intake per family | — | 9,959 | 299.1 | 133.5 | 1,995 | 1,697 | 5,133 | 72.9 | 37,700 | 5.27 | 4.79 | 73.8 | 538 |
| Average daily recommended intake per family | — | 11,860 | 353.0 | — | — | 6,100 | — | 62.0 | 23,140 | 5.90 | 8.80 | 59.0 | 376 |
| Per cent of recommended intake | — | 84 | 85 | — | — | 28 | — | 117 | 163 | 89 | 54 | 125 | 143 |

* The foods consumed by 25 per cent or more of the families were averaged in terms of the amount consumed per day per family. The nutrient contributions were then calculated.

† Carotene = 1670 I. U. vitamin A.

‡ Other foods: eggs, 35 gm.; liver (pork, beef, deer), 20 gm.; potatoes, 35 gm.; onions, 40 gm.; *caigua*, 40 gm.; cabbage, 25 gm.; tomatoes, 40 gm.; limes, 15 gm.; avocado, 35 gm.; noodles, 25 gm.

products represented the largest single item, accounting for 23 per cent of the food budget. Cereals and cereal products accounted for 16 per cent; fish, 11 per cent; and fruits, 12 per cent. Little difference was noted in the distribution of the food money between the first and second survey. In terms of cents (American) per kilogram (fresh, crude weight), average food costs at the time of the surveys were: fresh fish, 10 cents; dried fish, 25 cents; beef, 30 cents; pork, 25 cents; chicken, 40 cents; yuca, 3 cents; green plantains, 2 cents; oranges, 3 cents; rice, 15 cents; and beans, 15 cents.

### PHYSICAL STATUS

During the first survey 30 adolescents (16 boys and 14 girls) from twelve to sixteen years of age, and 23 adult women were given physical examinations. In the latter group, 10 were lactating, 3 were pregnant, and the remaining 10 were considered "normal" (neither lactating nor pregnant). All were members of families included in the dietary studies. Blood samples obtained by venous puncture were analyzed as described in the footnote to Table 4. Since there was no significant difference in the values for any of the constituents studied, the data for the adolescent boys and girls were combined.

The average hematocrit value for the adolescents was 35.5 ± 6.6 (Table 4) which was lower than the average normal value for this age group of 39.0 ± 5 per cent, reported by Wintrobe (10). Twelve of the 30 had hematocrit volumes of less than 35 per cent. The mean grams per 100 ml. hemoglobin, 10.4 ± 1.01, was about three-fourths of the normal value given by Wintrobe. The erythrocyte count of 3,860,000 per cubic millimeter was about 80 per cent of the normal value. These results indicated a widespread anemia among the adolescents.

The corresponding values for the adult women were essentially the same as those for the adolescents (Table 4). Since the adult female normally has higher values than the adolescent, this would indicate that the anemia was relatively more severe among the women. No significant differences in the hematologic values between the two groups of women was found. The low average hematocrit found for the "normal" woman of 31.9 per cent was due to the inclusion of three women with hematocrit volumes of 15.5, 22.6, and 23.0 per cent.

The mean corpuscular hemoglobin for the adolescent and pregnant or lactating and normal women of Table 4 was 27.1 ± 3.0, 27.3 ± 3.3, and 26.7 ± 4.0 mcg., respectively. These values were on the low side of the normal range (27 to 32 mcg.) (10), indicating the hypochromic nature of the anemia. The mean corpuscular volume for these same groups was 93 ± 15.2, 97 ± 16.3, and 87 ± 12.9 cubic microns, as compared with the normal range of 80 to 94.

For comparative purposes, certain of the hematologic data from the records of the Yurimaguas hospital were summarized (11). The mean erythrocyte count for 281 persons of both sexes and all ages was 3,120,000. Many of these persons were outpatients, and the total included many school children who were being submitted to routine physical examinations.

Each of the three groups of subjects studied had values for plasma proteins within the normal range of 6 to 8 gm. per 100 gm. (Table 4). The same was true for calcium, phosphorus, and alkaline phosphatase.

The widespread anemia was undoubtedly related to the high incidence of intestinal parasitism. Seventeen of the persons included in Table 4 brought stool samples for examination. Of these, 15 were infected with *Ascaris lumbricoides*; 8 with *Necator americanus*; and 11 with *Trichocephalus dispar*. The high incidence in this small sample was supported by data

TABLE 4

*Summary of analyses of blood samples**

| SUBJECT | SAMPLES | HEMATOCRIT | HEMOGLOBIN | ERYTHROCYTES | PLASMA PROTEIN† | PLASMA CALCIUM | PLASMA PHOSPHORUS | ALKALINE PHOSPHATASE‡ |
|---|---|---|---|---|---|---|---|---|
| | | % | *mg./100 ml.* | *no./mm³ × 10⁻²* | *gm./100 ml.* | *mg./100 ml.* | *mg./100 ml.* | *Bodansky units* |
| Adolescents, 12 to 16 years old | 30 | 35.5 ± 6.62 | 10.4 ± 1.01 | 3860 ± 600 | 8.72 ± 0.39 | 10.00 ± 1.06 | 5.64 ± 3.11 | 7.63 ± 3.13 |
| Pregnant and lactating adult women | 13 | 35.4 ± 5.98 | 10.0 ± 1.24 | 3700 ± 540 | 8.48 ± 0.60 | 10.09 ± 1.11 | 4.83 ± 2.56 | 5.16 ± 1.74 |
| Normal adult women | 10 | 31.9 ± 8.94 | 9.9 ± 2.24 | 3790 ± 890 | 8.90 ± 0.37 | 9.93 ± 0.82 | 3.81 ± 0.82 | 4.15 ± 0.82 |

* Heparinized blood was used for the determination of hematocrit (Van Allen); hemoglobin (Sahli-Hellige hemometer—100 per cent equivalent to 17 gm. per 100 gm. hemoglobin); and for red blood cell counts. The separated plasma was used for the determination of plasma protein by the copper-sulphate specific gravity method (9, p. 553); calcium, by the Clark-Collip modification of the Kramer-Tisdall method. (9, p. 589); phosphorus and alkaline phosphatase by the method of Bodansky (9, p. 584).

† Samples for plasma protein numbered 18, 10, and 8, respectively, for adolescents, pregnant and lactating women, and normal women.

‡ Only 9 determinations for phosphorus and alkaline phosphatase were made for normal women.

TABLE 5

*Heights and weights of groups examination with comparison of average values obtained in Huanuca and Lima* (12, 13)

| SUBJECTS | NUMBER OF SUBJECTS | WEIGHT | | | HEIGHT | | |
|---|---|---|---|---|---|---|---|
| | | Average | "Normal" variation | Range of values | Average | "Normal" variation | Range of values |
| **Adolescents** | | | | | | | |
| | | *kg.* | | *kg.* | *cm.* | | *cm.* |
| Boys | | | | | | | |
| Yurimaguas | 18 | 31.9 ± 6.6 | 25.3–38.5 | 21.2–48.0 | 137 ± 10.8 | 126–148 | 124–166 |
| Huanuco | 619 | 36.7 | 25.0–50.7 | 20.5–58.5 | 144 | 128–163 | 118–174 |
| Girls | | | | | | | |
| Yurimaguas | 13 | 37.9 ± 8.3 | 29.6–46.2 | 22.5–48.5 | 141 ± 8.8 | 132–150 | 126–152 |
| Lima | 1288 | 39.9 | 28.5–51.8 | 21.9–63.5 | 145 | 132–156 | 122–163 |
| **Adult Women** | | | | | | | |
| Normal | | | | | | | |
| Yurimaguas | 11 | 44.8 ± 3.9 | 40.9–48.7 | 37.5–52.7 | 149 ± 4.2 | 145–153 | 145–157 |
| Lima | 41 | 51.3 | 46.5–56.1 | 41.0–62.0 | 151 | 146–155 | 140–158 |
| Pregnant Yurimaguans | 3 | 56.2 | — | 53.6–60.0 | 149 | — | 145–152 |
| Lactating Yurimaguans | 10 | 49.9 ± 7.5 | 42.4–57.4 | 40.0–65.0 | 150 ± 4.0 | 146–154 | 145–156 |

* "Normal" variation = average ± one standard deviation.

TABLE 6

*Findings of dental examinations*

| SUBJECTS | NUMBER OF SUBJECTS | AVERAGE TEETH PER PERSON | AVERAGE CARIES PER PERSON |
|---|---|---|---|
| Adolescents | 27 | 26 | 17 |
| Pregnant and lactating adult women | 10 | 29 | 19 |
| Normal adult women | 8 | 27 | 13 |

taken from the hospital records (11). Of a total of 251 examinations (from January to May 1952), there were 243 positive counts representing 97 per cent of the total. The distribution in these samples was as follows: *Ascaris lumbricoides*, 82.5 per cent; *Trichocephalus dispar*, 75.8 per cent; *Necator americanus*, 39.8 per cent; and *Strongyloides stercoralis*, 3.2 per cent. Of this group, which included all ages, 19.1 per cent were infected with one parasite; 51.9 per cent with two; 25.1 per cent with three; and 0.8 per cent with four different parasites.

Physical examinations of the subjects revealed no person who could be said to have bad personal hygiene, testifying to the respect for cleanliness common among the people. However, the over-all physical appearance of 66 per cent of the adolescents was classified as "poor" or "fair." In general, there was a marked pallor, and the protruding abdomen sometimes associated with Ascaris infestation was common in this group.

In Table 5 the average heights and weights of the groups examined have been given and compared with those for similar age groups in the Departamentos of Huanuco and Lima (12, 13), although neither of these places is geographically completely similar to the jungle area in which Yurimaguas is situated. The adolescents had average heights and weights less than those for the larger number of subjects from Huanuco and Lima. The average weight of the adult women was less than that of the Limeños, although the average heights were essentially the same. The muscular development of about two-thirds of the Yurimaguan subjects was classified as "poor" or "fair."

The average number of dental caries per person was high (Table 6). Among the 27 adolescents examined, only 4 were completely free of caries. One pregnant woman (age thirty-eight) had perfect teeth, although no wisdom teeth were present. This woman had recently moved to Yurimaguas from one of the semi-civilized jungle tribes and still showed evidence of a dark stain on her teeth. The natives of the jungle are accustomed to staining their teeth by chewing the seed of a wild plant, a practice which is discontinued when they settle in larger towns. The Yurimaguas dentist who has made studies among the natives said that in general they have perfect teeth until they leave the jungle (14).

In Table 7 is presented a summary of the incidence of clinical symptoms possibly related to nutritional deficiencies. Approximately half the persons examined showed none of the clinical signs sometimes attributed to nutritional inadequacies. The other half showed a variety of common manifestations. Primary among these were the pallor of the skin and the alterations in the coloring and structure of the fingernails, symptoms probably related to anemia (15). The xerosis of the skin, of a type commonly associated with a deficiency of vitamin A, was a clinical finding in opposition to the dietary findings, which showed an adequate intake of this vitamin. However, when the source of carotene is predominantly one food—plantains, in this instance—average values for utilization may be inappropriate (16).

Although not of a specific nature, the vascularization of the bulbar conjunctiva observed in a number of cases might be associated with inadequate intakes of riboflavin. The pigmentation of the conjunctiva and of the skin, of uncertain etiology, commonly accompany malnutrition. In 24 per cent of the adult women, there were suspicions of or actual manifestations of hypertrophy of the thyroid.

## DISCUSSION

All the survey data have been interpreted employing the nutrient allowances for healthy individuals. Nutrient needs for persons with parasitic infections, accompanied by blood loss, diarrhea, and possibly impaired absorption, are not well known. Iron needs are increased by hookworm infection (8), and it is possible that requirements for other nutrients are also elevated. Even though the calculated iron intakes were high, hospital records and data from the individual clinical examinations made at the time of the first survey showed widespread anemia. Parasitism was undoubtedly one causative factor.

Prophylactic treatment of the parasite infections can have no lasting effect until sources of reinfection are eliminated. This means a general improvement in sanitary conditions, control of sewage and garbage disposal, and control of domestic animals, which are allowed to run freely through the town. Because of its complex nature, parasitic control cannot be accomplished easily or rapidly. Meanwhile, however, the severity of the anemia might be reduced by more adequate diets or by iron therapy. Cruz and Pimenta de Mello (8) have shown that normal hemoglobin levels can be maintained in persons heavily infected with hookworms by daily administration of 0.2 gm. ferrous sulphate.

The most marked inadequacies in the Yurimaguan diets were those of calcium, riboflavin, and thiamine, in that order (Table 2). The compilation of the "average" diets (Table 3) showed that a proportionate distribution of the available foods could have supplied an almost adequate amount of thiamine. The same was not true for calcium and riboflavin. An increase in the consumption of milk and of green, leafy vegetables might appear to be the best way to increase the intakes of these two nutrients. However, the scarcity and relative high cost of milk limits its use in overcoming present dietary inadequacies, and other sources of riboflavin and calcium must be sought.

The production of vegetables in the jungle also presents problems peculiar to that area. The possibility exists that certain wild greens might substitute for the ordinary garden-type of leafy vegetables. For example, the leaves of the yuca (cassava) plant are rich in calcium, riboflavin, ascorbic acid, and carotene (17). Yuca grows abundantly in the jungle, and if the people were taught how to prepare the leaves in a palatable way, they might be used to supply a part of the calcium and riboflavin needs. Yuca or cassava leaves are important constituents of the diets of the natives of Java (18).

The most striking feature of the Yurimaguan diets

TABLE 7

*Summary of the occurrence of clinical symptoms possibly related to nutritional deficiencies*

| CLINICAL SYMPTOM | POSITIVE CASES | | |
|---|---|---|---|
| | Adolescents* | Adult women | |
| | | Pregnant and lactating† | Normal‡ |
| | % | % | % |
| Dryness of hair | 10 | 23 | 25 |
| Desquamation of scalp | 13 | 15 | 8 |
| Skin of face | | | |
| Pigmentation | 10 | 23 | 42 |
| Pallor | 23 | 23 | 17 |
| Seborrhea | 3 | — | 25 |
| Acneiform eruption | 3 | — | 8 |
| Xerosis | 3 | — | 8 |
| Dyssebacia nasolabial folds | 3 | — | — |
| Eyes | | | |
| Bulbar conjunctiva | | | |
| Blue-black spots | 61 | 38 | 50 |
| Vascularization | 42 | 23 | 42 |
| Pigmentation | 23 | 23 | 8 |
| Scleral thickening | 10 | 8 | 25 |
| Limbo corneal cafa | 16 | — | 17 |
| Pterygia | 3 | 23 | 33 |
| Palpebral conjunctiva | — | — | — |
| Pallor | 10 | — | 17 |
| Eyelids | | | |
| Scabbiness | 3 | 8 | — |
| Pallor | 10 | — | 17 |
| Lips | | | |
| Cheilosis | 16 | 31 | 17 |
| Pigmentation | 23 | 15 | 33 |
| Pallor | 13 | — | 17 |
| Angular stomatitis | 7 | — | — |
| Tongue | | | |
| Atrophic papillae | 3 | 15 | 25 |
| Hypertrophied papillae | — | — | — |
| Fissuring | — | 8 | 8 |
| Pigmented papillae | — | — | 17 |
| Gums | | | |
| Gingivitis | 10 | 15 | 8 |
| Bleeding | 10 | — | — |
| Pallor | 6 | — | — |
| Thyroid | | | |
| Hypertrophy, doubtful | — | — | 8 |
| Hypertrophy, moderate | 3 | 8 | 8 |
| Hypertrophy, advanced | — | — | 8 |
| Skin of trunk, arms, legs | | | |
| Xerosis, slight | 48 | — | 42 |
| Xerosis, moderate | 10 | — | 8 |
| Pigmentation | 10 | 8 | 42 |
| Hyperkeratosis | 3 | — | — |
| Fingernails: | | | |
| Pallor | 23 | 23 | 33 |
| White spots | 23 | 8 | 8 |
| Longitudinal striations | 29 | 23 | 17 |
| Grooves | | 8 | 8 |
| Muscular development: | | | |
| Good | 26 | 31 | 33 |
| Fair | 42 | 46 | 50 |
| Poor | 23 | 8 | 8 |
| Subcutaneous tissue | | | |
| Abundant | 3 | 15 | — |
| Moderate | 3 | 15 | — |
| Little fat | 39 | 8 | — |

* 31 subjects.
† 13 subjects.
‡ 12 subjects.

was the high consumption of green plantains and the contributions made by this fruit to the intakes of certain of the nutrients. The plantains were always cooked before using, and an analysis of plantains prepared in a Yurimaguan home showed a loss of 50 per cent or more, in terms of dry weight, for ascorbic acid and carotene. Cooking losses were not considered in calculating nutrient intakes; therefore, actual intakes were less than the calculated values.

The fact that about 70 per cent of the calculated vitamin A intake came from the carotene of plantains raises the question of biologic availability of that carotene. The observation during the physical examinations of a high incidence of symptoms possibly related to vitamin A deficiencies suggested that the plantain carotene does not have an equivalence of 1670 I.U. of vitamin A per milligram (7) or that it is not well utilized. These findings emphasize the need for biologic determination of carotene availability and for more refined chemical analyses of the carotene fractions of foods, which alone provide a large proportion of the total dietary "vitamin A." It would appear logical to encourage the people of Yurimaguas to obtain more vitamin A from animal sources or carotene from a greater variety of vegetable products.

The poor muscular development revealed by the physical examinations might be attributed to inadequate protein intakes. Approximately one-half the families consumed less than 100 per cent, and about one-third less than 75 per cent of the recommended amount of protein. The most obvious way to increase protein intake would be to increase fish consumption. The average amount of fish eaten per day per family (Table 1) appears low when the availability and low cost are considered.

Families classified as "poor," "fair," or "good" in one survey did not always fall into the same group during the other study. The lack of correlation in this respect suggested that the dietary status of any given family could not be predicted from the results of a one-week survey.

## SUMMARY

Seven-day family dietary surveys were conducted in the jungle town of Yurimaguas, Peru, in May and December 1952. Calcium and riboflavin were the nutrients consumed in least adequate amounts during both surveys. Fifty per cent of the families during the first survey and 24 per cent during the second consumed less than 75 per cent of the recommended amount of thiamine. About one-third of the families were in this group with respect to caloric and protein intakes, although there was a slight improvement in the intake of the latter during the second survey. Intakes of iron, vitamin A, niacin, and ascorbic acid were high; two-thirds or more of the families consumed more than 100 per cent of the recommended amounts of these nutrients during both surveys.

Physical examinations and biochemical data showed that there was widespread anemia among the people of Yurimaguas and that almost 100 per cent of the population had intestinal parasites.

## REFERENCES

(1) Condiciones Sanitarias del Departamento de Loreto. Lima, Peru: Division of Sanitary Engineering, Servicio Cooperativo Interamericano de Salud Publico, 1950.

(2) Collazos, C., C., White, H. S., Reh, E., Huenemann, R. L., and White, P. L.: Dietary surveys in Peru. 1. San Nicolás, a cotton hacienda on the Pacific Coast. J. Am. Dietet. A. 29: 883, 1953.

(3) Collazos, C., White, P. L., White, H. S., Viñas, E., Alvistur, E., Urquieta, R., Vásquez, J., Dias, C., Quiroz, A., Roca, A., and Hegsted, D. M.: La composición de los alimentos Peruanos. Anales de la facultad de Medicina de la Universidad Nacional Mayor de San Marcos (Lima, Peru) 35: No. 2, March 1953.

(4) Flores, M., Luz, G. C., and Bianchi, R.: Tablas Preliminares de Requerimientos Nutritionales para Uso en Centro América y Panamá. Publication INCAP L-26. Guatemala City: Instituto de Nutrición de Centro América y Panamá, August, 1952.

(5) Huenemann, R. L., and Collazos, C., C.: Nutrition and care of young children in Peru. 3. Yurimaguas, a jungle town. J. Am. Dietet. A., in press.

(6) Ward, N. (Servicio Cooperativo Interamericano de Producion de Alimentos, Lima): Private communication.

(7) Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

(8) Cruz, W. O., and Pimenta deMello, R.: Prophylaxis of hookworm anemia-deficiency disease. Blood 3: 457, 1948.

(9) Hawk, P. B., Oser, B. L., and Summerson, W. H.: Practical Physiological Chemistry. 12th ed. Philadelphia: The Blakiston Co., 1947.

(10) Wintrobe, M. M.: Clinical Hematology. 3rd ed. Philadelphia: Lea and Febiger, 1951.

(11) Sotelo, A.: Unpublished data.

(12) Pretto, J. C., and Gomez, C., M.: Estudios bioantropometricos en los escolares Peruanos. Bol. d. Inst. psicopedagog. Nac. No. 6, 131, 1947.

(13) Pretto, J. C., and Gomez, C., M.: Antropometria en alumnos de los colegios nationales de Lima. Bol. d. Inst. psicopedagog. Nac. No. 9: 41, 1950.

(14) Guerra, A.: Unpublished data.

(15) American Medical Association: Handbook of Nutrition. 2nd ed. Philadelphia: The Blakiston Co., 1951.

(16) Food and Nutrition Board: Recommended Dietary Allowances. Revised. Natl. Research Council Rep. & Circ. Series No. 129, Oct., 1948.

(17) Munsell, H. E., Williams, L. O., Guild, L. P., Troescher, C. B., Nightingale, G., and Harris, R. S.: Composition of food plants of Central America. 1. Hônduras. Food Research 14: 144, 1949.

(18) vanVeen, A. C.: Nutritive value of young cassava leaves. Geneeskund. Tijdschr. Nederl.-Indie 78: 2548, 1938; Chem. Abstr. 33: 766, 1939.

# Rapid Method for Qualitative Appraisal of Food Intakes of Groups[1]

## Procedure and Reliability

**RUTH UHLER THOMAS, HAZEL METZ FOX, HARRIET J. KELLY, Ph.D., ELSIE Z. MOYER, and ICIE G. MACY, Ph.D., Sc.D.**

*Research Laboratory, Children's Fund of Michigan, Detroit*

IN 1950 Toverud, Stearns, and Macy (1) summarized current knowledge of nutritional factors in maternal and child health and indicated possible directions for future experimentation. In studies of nutritional status comprising biochemical and clinical evaluations, supplemental information about food intake will contribute greatly to the value of the results. In a conference in 1947 (2) which brought together some twenty-five physicians, biochemists, and nutritionists, the methods for evaluation of nutritional status and the problems involved were discussed. A method for estimating food intake must be practicable within the particular needs of the study, as well as within the available facilities. Data on food intake assembled to characterize the food habits of a population group may not be applicable to a study of the food habits of individuals. Each method must be viewed critically and tested for reliability under conditions in which it is to be applied.

Young *et al.* (3) presented objective studies of dietary methodology and discussed the relative merits of several evaluation methods. Burke (4) developed the detailed dietary history as a research tool. The Vanderbilt Cooperative Study of Maternal and Infant Nutrition (5, 6) presented nutrient intakes calculated from seven-day records. Dieckmann and associates (7, 8), in studying protein intake in pregnancy, employed calculated values obtained from records of weighed food intake. These, and methods involving analyses of foods (9–11), have been used in assessing the dietary intakes of individuals and of groups.

In connection with a study of the nutritional status of pregnant women living in a large city, a rapid method of evaluating food intake from dietary records was developed, tested, and applied. The white and Negro women from whom dietary intake records were obtained received prenatal care from an obstetrician in private practice, from a private hospital clinic, or from a public clinic. The groups are described in the publications which present in detail the biochemical, clinical, and food intake data (12, 13).

### THE PROCEDURE

#### *Dietary Records*

The selection of a method for estimating food intake required: (a) consideration of the subjects—

TABLE 1

*Basic pattern diets for non-pregnant, pregnant, and lactating women*

| FOOD GROUPS | POINT VALUE PER SERVING | RECOMMENDED SERVINGS PER WEEK | | |
|---|---|---|---|---|
| | | Non-pregnant women | Pregnant women | Lactating women |
| Milk and milk products | 1 | 21 | 28 | 42 |
| Eggs | 1 | 7 | 7 | 7 |
| Legumes | 1 | 0 | 7 | 7 |
| Beef, veal, fowl, lamb, fish | 2 | 4 | 4 | 4 |
| Pork | 2 | 2 | 2 | 2 |
| Liver | 4 | 1 | 1 | 1 |
| Citrus fruits and analogous foods | 1 | 7 | 7 | 14 |
| Other fruits | 1 | 14 | 14 | 14 |
| Leafy, green and yellow vegetables | 1 | 7 | 7 | 7 |
| Other cooked vegetables | 1 | 7 | 7 | 7 |
| Raw vegetables | 1 | 7 | 7 | 7 |
| White potatoes | 1 | 7 | 7 | 7 |
| Whole grain or enriched bread, cereals | 1 | 28 | 28 | 28 |
| Butter or fortified margarine* | 1 | 7 | 7 | 7 |

* Maximum of 4 points per week

[1] Supported in part by a grant from the Nutrition Foundation, Inc. Received for publication April 2, 1954.

TABLE 2

*Comparison of nutritive values of basic dietary pattern and Recommended Dietary Allowances for non-pregnant, pregnant, and lactating women.*

| DIET | ENERGY | PROTEIN | CALCIUM | IRON | VITAMIN A | ASCORBIC ACID | THIAMINE | RIBOFLAVIN | NIACIN |
|---|---|---|---|---|---|---|---|---|---|
| Non-Pregnant Women | | | | | | | | | |
| | *calories* | *gm.* | *gm.* | *mg.* | *I.U.* | *mg.* | *mg.* | *mg.* | *mg.* |
| Basic dietary pattern | 1522 | 68 | 1.1 | 11.6 | 9,427 | 107 | 1.2 | 2.2 | 9.5 |
| Recommended allowance | 2400 | 60 | 1.0 | 12.0 | 5,000 | 70 | 1.2 | 1.5 | 12.0 |
| Pregnant Women | | | | | | | | | |
| Basic dietary pattern | 1787 | 83 | 1.4 | 14.2 | 9,857 | 109 | 1.4 | 2.7 | 10.3 |
| Recommended allowance | 2400 | 85 | 1.5 | 15.0 | 6,000 | 100 | 1.5 | 2.5 | 15.0 |
| Lactating Women | | | | | | | | | |
| Basic dietary pattern | 2157 | 101 | 2.0 | 15.0 | 10,857 | 155 | 1.7 | 3.6 | 11.1 |
| Recommended allowance | 3000 | 100 | 2.0 | 15.0 | 8,000 | 150 | 1.5 | 3.0 | 15.0 |

TABLE 3

*Servings of various food groups needed to meet Recommended Dietary Allowances for pregnancy*

| FOOD GROUP | WEEKLY SERVINGS |
|---|---|
| Leafy, green and yellow vegetables | 7 |
| Citrus fruits and analogous foods | 7 |
| Potatoes, other fruits and vegetables—raw and cooked | 35 |
| Milk and milk products | 28 |
| Meat, fish, fowl, eggs, and legumes | 21 |
| Bread and cereals | 28 |
| Butter or fortified margarine | 7 |

women with widely-differing dietary habits and customs, intellectual and educational levels, cooperativeness, varying social and economic pressures; (b) consideration of the limitations for instruction and supervision; and finally, (c) evaluation of the dietary records. For some patients time was available for suitable instruction in keeping seven-day food intake records; however, in the public clinic, the patients' attitudes and the staff time available for instruction often were not conducive to obtaining reliable seven-day records. For these women, 24-hr. recall records were obtained, with careful cross-checking by trained nutritionists. A total of 1128 dietary records were collected. In evaluating the food intakes, the objective was to determine qualitative differences for *groups* of individuals, and to be able to distinguish zones or extreme levels of intake rather than to evaluate precisely the intakes of *individuals.*

### *Basic Pattern Diets*

In evaluating food intake, the standards most frequently used in this country are the Recommended Dietary Allowances of the Food and Nutrition Board, National Research Council (14). Although the allowances are not intended to represent minimal needs (rather, they are to be regarded as goals or objectives), they provide a satisfactory base for reference.

A dietary pattern for pregnancy similar to those illustrated by others (15) was established as a general guide. According to this plan, foods may be classified into several groups based upon nutritive content; however, allowances are made for some contribution from foods offering lower concentrations. Turner (16) described the method by which the nutritive value of such a pattern of food intake may be calculated on the basis of servings using standard food tables. Our plan was to evaluate first trimester food records with respect to the recommendations for healthy, non-pregnant women and food records for the last two trimesters in reference to the allowances for pregnancy. The servings necessary for non-pregnant women were increased to provide for the requirements of pregnancy and of lactation. Values for the basic pattern diets (Table 1) were obtained with the food composition table of Donelson and Leichsenring (17) and checked with the recommendations of the Food and Nutrition Board.

Several adaptations of the calculation procedure were made. Donelson and Leichsenring listed values for seven green and yellow vegetables; in the present study, average values were used. Similarly, an average daily value was obtained for meat by determining mean values for: four servings each of beef, veal, fish, lamb, fowl; two of pork; and one of liver. A definite plan for substitution included weighting values for the animal flesh foods.

The levels of daily intake recommended by the Food and Nutrition Board for non-pregnant, pregnant, and lactating women are compared in Table 2 to the calculated (17) values for the basic dietary patterns.

For all nutrients except calories and niacin, the patterns approximated the recommended allowances. Since the pattern diets did not include desserts, the lower calorie levels were not a major concern. To date, the niacin requirement is not well established.

### *Scoring Method*

A simplified, over-all evaluation of dietary intake was obtained by recording the number of servings

TABLE 4

*Dietaries evaluated by three methods (in terms of percentages of the recommended allowances)*

| SEVEN-DAY DIETS | OVER-ALL RATING BY RAPID SCORING | METHOD OF EVALUATING DIET | PERCENTAGE OF RECOMMENDATIONS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Energy | Protein | Calcium | Iron | Vitamin A | Thiamine | Riboflavin | Niacin | Ascorbic acid |
| | *points* | | | | | | | | | | |
| 1* | 91 | Anal. | 110 | 134 | 123 | — | — | 113 | 178 | 146 | 93 |
| | | Calc. | 93 | 129 | 125 | 137 | 99 | 156 | 155 | 117 | 103 |
| 2* | 86 | Anal. | 136 | 122 | 123 | — | — | 108 | 181 | 128 | 95 |
| | | Calc. | 86 | 116 | 114 | 123 | 73 | 141 | 135 | 98 | 107 |
| 3* | 92 | Anal. | 116 | 115 | 129 | — | — | 98 | 153 | 117 | 75 |
| | | Calc. | 77 | 115 | 124 | 123 | 98 | 132 | 129 | 100 | 87 |
| 4* | 88 | Anal. | 120 | 114 | 107 | — | — | 104 | 171 | 130 | 93 |
| | | Calc. | 81 | 112 | 115 | 114 | 86 | 137 | 135 | 99 | 98 |
| 5* | 88 | Anal. | 93 | 106 | 85 | 178 | — | 88 | 183 | 102 | 110 |
| | | Calc. | 85 | 125 | 112 | 106 | 81 | 111 | 136 | 108 | 105 |
| 6* | 89 | Anal. | 96 | 119 | 94 | 166 | — | 99 | 189 | 120 | 98 |
| | | Calc. | 87 | 136 | 118 | 108 | — | 116 | 146 | 120 | 98 |
| 7* | 88 | Anal. | 89 | 104 | 67 | 172 | — | 88 | 159 | 118 | 92 |
| | | Calc. | 80 | 117 | 87 | 108 | 68 | 103 | 109 | 108 | 97 |
| 8* | 90 | Anal. | 90 | 100 | 72 | 140 | — | 86 | 161 | 106 | 89 |
| | | Calc. | 82 | 114 | 98 | 92 | 66 | 104 | 117 | 104 | 98 |
| 9 | 92 | Anal. | 82 | 98 | — | — | — | 55 | 86 | 83 | 57 |
| | | Calc. | 83 | 98 | 85 | 109 | 217 | 91 | 101 | 101 | 83 |
| 10 | 95 | Anal. | — | 108 | — | — | — | 91 | 106 | 139 | 85 |
| | | Calc. | 95 | 109 | 90 | 126 | 256 | 103 | 109 | 121 | 88 |
| 11 | 92 | Anal. | 80 | 87 | — | — | — | 61 | 81 | 78 | 73 |
| | | Calc. | 78 | 93 | 85 | 101 | 280 | 87 | 99 | 93 | 58 |
| 12 | 96 | Anal. | 94 | 104 | — | — | — | 80 | 103 | 91 | 97 |
| | | Calc. | 95 | 110 | 90 | 127 | 347 | 101 | 109 | 116 | 92 |
| 13 | 96 | Anal. | 97 | 108 | — | — | — | 75 | 111 | 94 | 59 |
| | | Calc. | 101 | 115 | 90 | 129 | 259 | 103 | 109 | 120 | 85 |
| 14 | 89 | Anal. | 85 | 90 | — | — | — | 71 | 90 | 89 | — |
| | | Calc. | 83 | 93 | 75 | 98 | 252 | 79 | 90 | 94 | 71 |
| 15 | 99 | Anal. | 112 | 124 | — | — | — | 93 | 111 | 112 | 152 |
| | | Calc. | 111 | 126 | 100 | 151 | 411 | 119 | 119 | 143 | 113 |

* Children's diets. Other diets are those of lactating women.

for the food groupings in the pattern diet (Table 1). When unusual foods were included, they were classified after comparing their nutritive value, obtained from food tables, with one of similar value in the short method of dietary analysis (17). Consideration was given to foods for substitution credit. Foods in other groups were not substituted for the following: meat, eggs, legumes, butter, milk, citrus fruits, and leafy, green and yellow vegetables. However, substitutions were allowed within a major food group if the requirements for the food pattern had been met, e.g., extra servings of meat might be substituted for eggs or legumes.

In the rapid over-all scoring procedure, based on the number of servings per week of foods estimated to meet the dietary allowances for pregnancy, a value of 1 point per serving was assigned, except for the weighting of meat and butter. Each serving of meat was allowed 2 points, liver 4 points, while butter or fortified margarine was limited to a maximum score of 4 points per week. Maximum scores for dietary intakes were designated 100 per cent and consisted of

TABLE 5

*Distribution of values calculated by the short method for 30 seven-day diets rated by the rapid over-all scoring method*

| NUTRIENT | OVER-ALL SCORE | NUMBER OF RATINGS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Below 10% R.D.A.* | 10% R.D.A. | 20% R.D.A. | 30% R.D.A. | 40% R.D.A. | 50% R.D.A. | 60% R.D.A. | 70% R.D.A. | 80% R.D.A. | 90% R.D.A. | Above 100% R.D.A. |
| Energy | High† | | | | | | | 3 | 6 | | 1 | |
| | Intermediate‡ | | | | | 2 | 3 | 4 | 1 | 1 | | |
| | Low§ | | | | 5 | 3 | 1 | | | | | |
| Protein | High | | | | | | | | | 5 | 3 | 2 |
| | Intermediate | | | | | | 2 | 3 | 4 | 2 | | |
| | Low | | | | 2 | 4 | 3 | | | | | |
| Calcium | High | | | | | | 1 | | 1 | 4 | 3 | 1 |
| | Intermediate | | | | | 4 | 5 | 2 | | | | |
| | Low | 1 | 2 | 4 | 2 | | | | | | | |
| Iron | High | | | | | | | 2 | 3 | 4 | 1 | |
| | Intermediate | | | | | 1 | 3 | 4 | 3 | | | |
| | Low | | | | 1 | 4 | 4 | | | | | |
| Vitamin A | High | | | | | | 1 | | | | | 9 |
| | Intermedaite | | | | | | 1 | | 1 | | | 9 |
| | Low | | | | 1 | 3 | 1 | 1 | 1 | 1 | 1 | |
| Thiamine | High | | | | | | | 1 | 3 | 6 | | |
| | Intermediate | | | | | 1 | 2 | 7 | | 1 | | |
| | Low | | | 1 | 2 | 2 | 4 | | | | | |
| Riboflavin | High | | | | | | | | | 1 | 3 | 6 |
| | Intermediate | | | | | 1 | 2 | 5 | 2 | 1 | | |
| | Low | | | 2 | 5 | 2 | | | | | | |
| Niacin | High | | | | | | 2 | 4 | 2 | 2 | | |
| | Intermediate | | | | | 2 | 4 | 3 | 1 | | 1 | |
| | Low | | | 1 | 1 | 6 | 1 | | | | | |
| Ascorbic acid | High | | | | | | | | 1 | 1 | 3 | 5 |
| | Intermediate | | | | 2 | 1 | | 3 | | 3 | | 2 |
| | Low | | 1 | 2 | 3 | 2 | 1 | | | | | |

* Recommended Dietary Allowances.

† Over-all rating of 80 to 100% for 10 records by rapid scoring method.

‡ Over-all rating of 60 ot 80% for 11 records by rapid scoring method.

§ Over-all rating of below 60% for 9 records by rapid scoring method.

125 points for non-pregnant, 139 for pregnant, and 160 for lactating women.

In addition, estimations of the intakes of foods in some groupings as "high," "intermediate," or "low" were determined. In some instances, numbers of servings for similar foods were pooled. For seven food groupings, the number of servings per week estimated to be necessary to meet the recommendations for pregnancy of the Food and Nutrition Board are shown in Table 3.

The consumption of any group of foods was considered adequate or high if it met or exceeded the necessary number of servings. For example, a pregnant woman receiving 28 glasses of milk a week was given a rating of "high" in milk consumption; if consumption was below 60 per cent, the intake was "low"; if the number of servings was between, the intake was termed "intermediate."

### TESTING THE SCORING METHOD

The scoring method was applied to dietaries from pregnant and lactating women, and children who were subjects in this laboratory. The basic food patterns for the children were set up to meet the requirements for each age and sex group according to the recommendations of the National Research Council, and calculated for their respective nutritive content. Three tests for reliability of the scoring method were made with values obtained by: (a) food analyses, (b) calculation from food composition tables, and (c) ratings of maternal dietaries determined in another laboratory.

TABLE 6

*Comparison of dietary ratings obtained by the rapid scoring method and by calculation using the short method and conventional tables (values in percentage of recommendations)*

| DIET | OVER-ALL RATING BY RAPID SCORING | METHOD REFERENCE | PERCENTAGE OF RECOMMENDATIONS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Energy | Protein | Calcium | Iron | Vitamin A | Thiamine | Riboflavin | Niacin | Ascorbic acid |
| | *points* | | | | | | | | | | |
| 1 | 96 | 19, 20 | 81 | 106 | 103 | 97 | 227 | 93 | 109 | 94 | 142 |
| | | 17 | 71 | 101 | 91 | 91 | 170 | 83 | 100 | 69 | 120 |
| 2 | 86 | 19, 20 | 76 | 84 | 62 | 98 | 243 | 124 | 91 | 103 | 114 |
| | | 17 | 67 | 81 | 54 | 87 | 244 | 75 | 87 | 83 | 97 |
| 3 | 70 | 19, 20 | 69 | 69 | 66 | 62 | 146 | 79 | 65 | 74 | 105 |
| | | 17 | 67 | 67 | 58 | 56 | 126 | 66 | 65 | 50 | 113 |
| 4 | 69 | 19, 20 | 65 | 63 | 56 | 66 | 153 | 64 | 68 | 63 | 63 |
| | | 17 | 59 | 69 | 55 | 65 | 140 | 67 | 69 | 63 | 63 |
| 5 | 65 | 19, 20 | 54 | 63 | 46 | 60 | 133 | 57 | 56 | 54 | 41 |
| | | 17 | 46 | 63 | 42 | 55 | 129 | 45 | 52 | 49 | 37 |

The seven-day weighed dietaries (of eight children and seven lactating women) which had been analyzed chemically (10, 21) and evaluated by calculation with the conventional long method were rated by the rapid scoring method as shown in Table 4. The over-all ratings by the rapid scoring method for the diets of the children ranged from 86 to 92 per cent and for those of the women from 89 to 99 per cent. In general, the over-all ratings by scoring showed fair agreement with those determined from both analyzed and calculated values, although in most instances the over-all ratings were lower.

From the over-all ratings obtained for seven-day diets by the rapid scoring method, recorded in household weights or measures, 10 were selected which indicated intakes of 80 to 100 per cent; 11 which indicated 60 to 80 per cent; and 9 which indicated intakes of less than 60 per cent of the recommended allowances. All were calculated by the short method (17) (Table 5) and 5 were calculated also with standard food tables (19, 20) (Table 6). In general, the diets in the highest range by the rapid scoring method (80 to 100 per cent) more nearly represented the recommended allowances than did those rated below 60 per cent. The three levels of intake represented by the diets were most closely reflected by the calculations for protein content. For ascorbic acid, the better diets (80 to 100 per cent) and the poorer diets (below 60 per cent) showed close association to the over-all ratings; the diets rating from 60 to 80 per cent showed considerable spread in values calculated for this vitamin. The values calculated for vitamin A showed the least association to the over-all food intake evaluation. The over-all ratings of five seven-day records (Table 6) ranged from 65 to 96 per cent. In all but a few instances, the long method of calcu-

TABLE 7

*Comparison of dietary ratings for 32 pregnant women by the rapid scoring method with those obtained from School of Medicine and Dentistry, University of Rochester*

| WOMEN | PERCENTAGE OF RECOMMENDED ALLOWANCES | | | |
|---|---|---|---|---|
| | Second trimester | | Third trimester | |
| | Rapid scoring method | Rochester rating | Rapid scoring method | Rochester rating |
| 1 | 100 | 100 | 100 | 100 |
| 2 | — | — | 98 | 100 |
| 3 | 98 | 100 | 98 | 100 |
| 4 | 97 | 93 | 97 | 92 |
| 5 | 96 | 100 | 96 | 100 |
| 6 | 93 | 91 | 96 | 91 |
| 7 | — | — | 94 | 89 |
| 8 | 93 | 97 | 93 | 91 |
| 9 | 93 | 97 | 93 | 97 |
| 10 | 92 | 100 | 92 | 95 |
| 11 | — | — | 91 | 100 |
| 12 | — | — | 90 | 90 |
| 13 | 95 | 100 | 88 | 83 |
| 14 | — | — | 88 | 91 |
| 15 | 90 | 92 | 86 | 92 |
| 16 | — | — | 85 | 93 |
| 17 | 83 | 88 | 83 | 88 |
| 18 | 83 | 72 | 82 | 77 |
| 19 | — | — | 82 | 80 |
| 20 | 96 | 98 | 80 | 85 |
| 21 | 77 | 73 | 77 | 74 |
| 22 | 76 | 84 | 76 | 77 |
| 23 | 76 | 60 | 76 | 67 |
| 24 | 75 | 69 | 75 | 69 |
| 25 | — | — | 74 | 75 |
| 26 | 78 | 66 | 74 | 64 |
| 27 | — | — | 68 | 58 |
| 28 | — | — | 65 | 59 |
| 29 | — | — | 63 | 66 |
| 30 | — | — | 62 | 57 |
| 31 | 58 | 58 | 58 | 61 |
| 32 | — | — | 54 | 58 |

lation gave higher percentages of the allowances for calories and other nutrients than did the short method. The two food records rated 96 and 86 per cent showed higher calculated values by both methods with reference to the allowances for calories, protein, iron, vitamin A, thiamine, riboflavin, and niacin than did the three records which rated 65, 69, and 70 per cent.

Fifty-one seven-day dietary histories obtained for 32 pregnant women (19 second and 32 third trimester) and rated by personnel in another laboratory[2] were also rated by the over-all rapid scoring procedure (Table 7). Ratings from the two laboratories differed by 5 per cent or less for 37 of 51 records. In general, the greater discrepancies occurred for diets with lower ratings. The records for 19 women represented by diets for both the second and third trimesters indicated established individual eating habits. Diets for 13 of the 19 women were identical in the over-all scores, and those for four additional women varied less than 5 per cent.

Percentage scores from over-all ratings by the rapid scoring method were determined for one seven-day and one 24-hr. recall food intake record for each of 20 pregnant women (Table 8). The time interval between the two records was two weeks or less for 17 of the women. The comparative scores for 18 women deviated less than 15 points; for 14, less than 10 points. For 13 women, the ratings from seven-day food intake records exceeded those from the 24-hr. recall. The mean rating for the seven-day records was 72 per cent, with a range of 46 to 97; the mean for the 24-hr. records was 70 per cent with a range of 42 to 99.

In addition, the two types of food intake records from the 20 women were evaluated as "high," "intermediate," or "low," with respect to each of six food groups. In Table 9 are listed the number of seven-day and 24-hr. recall records as: identical; varying between intermediate vs. either high or low; and, varying as high vs. low.

The greatest number of identical ratings in the two types of records was for "potatoes, other fruits and vegetables." None of the pairs of ratings for this food grouping, the ratings for "meat, eggs, and so on," or for "bread and cereals" varied from "high" to "low." The seven-day and 24-hr. recall records showed the greatest discrepancies in leafy, green and yellow vegetables, for which the records of five women were "high" vs. "low." For the same food grouping, the smallest number of women had "identical" ratings by the two methods.

[2] Dietary histories obtained through the courtesy of Dr. Nevin S. Scrimshaw, School of Medicine and Dentistry, University of Rochester, Rochester, New York, were rated by staff members associated with that study of nutrition in pregnancy. A percentage score was obtained by comparing the calculated nutrient intake with the Recommended Dietary Allowances of the Food and Nutrition Board (14).

TABLE 8

*Comparison of ratings by rapid scoring method for one seven-day and one 24-hr. recall dietary for each of 20 pregnant women*

| WOMEN | RATING | |
|---|---|---|
| | Seven-day | 24-hr. recall |
| 1 | 97 | 95 |
| 2 | 96 | 99 |
| 3 | 96 | 87 |
| 4 | 96 | 87 |
| 5 | 86 | 82 |
| 6 | 81 | 58 |
| 7 | 78 | 72 |
| 8 | 72 | 65 |
| 9 | 71 | 80 |
| 10 | 70 | 72 |
| 11 | 66 | 80 |
| 12 | 66 | 62 |
| 13 | 66 | 53 |
| 14 | 66 | 53 |
| 15 | 61 | 60 |
| 16 | 60 | 63 |
| 17 | 60 | 48 |
| 18 | 51 | 58 |
| 19 | 47 | 85 |
| 20 | 46 | 42 |
| Mean | 72 | 70 |

## SUMMARY

A simple procedure for appraising the dietary intakes of groups of women during pregnancy was developed, applied, and tested for reliability. The method is based on the collection of food intake records—both seven-day and 24-hr. recall—carefully cross-checked by nutritionists. The dietary records were weighted, rated, and interpreted on the basis of servings per week of foods in basic food groupings, with standards devised to meet the nutritive requirements of pregnancy and lactation.

The reliability of the method was tested: (a) with

TABLE 9

*Comparison of ratings, according to food groups, for two types of records*

| COMPARISON OF RATING FROM TWO TYPES OF RECORDS | LEAFY, GREEN AND YELLOW VEGETABLES | CITRUS FRUITS AND ANALOGOUS FOODS | POTATOES, OTHER FRUITS AND VEGETABLES | MILK AND MILK PRODUCTS | MEAT, FISH, FOWL, EGGS, AND LEGUMES | BREAD AND CEREALS |
|---|---|---|---|---|---|---|
| Identical | 7 | 11 | 16 | 11 | 11 | 12 |
| Intermediate vs. high or low | 8 | 6 | 4 | 7 | 9 | 8 |
| High vs. low | 5 | 3 | 0 | 2 | 0 | 0 |

records of chemical analyses of diets eaten by mothers and children; (b) with records from direct calculations with tables of food composition; and (c) with records of dietary intake obtained and rated in another laboratory.

The qualitative dietary method was applied satisfactorily to groups of women of widely-differing dietary habits and customs, intellectual and educational levels, cooperativeness, and socio-economic status and served to classify the women roughly according to nutritional status. The findings were coordinated with clinical and biochemical blood studies from women during pregnancy (12, 13). The simplified procedure offers opportunities to augment our knowledge of food intake by groups of individuals, especially those in the lower socio-economic levels who do not lend themselves to more accurate, time-consuming, and costly studies and who might not be observed otherwise.

REFERENCES


(1) Toverud, K. U., Stearns, G., and Macy, I. G.: Maternal Nutrition and Child Health. An Interpretative Review. Natl. Research Council Bull. No. 123. Nov., 1950.

(2) Research Laboratory, Children's Fund of Michigan: Proceedings of Conference on Methods for Evaluating Nutritional Status of Mothers, Infants and Children. Detroit: Children's Fund of Michigan, 1947.

(3) Young, C. M., Chalmers, F. W., Church, H. N., Clayton, M. M., Gates, L. O., Hagan, G. C., Steele, B. F., Tucker, R. E., Wertz, A. W., and Foster, W. D.: Cooperative Nutritional Status Studies in the Northeast Region. 3. Contributions to Dietary Methodology Studies. Mass. Agric. Exper. Sta. Bull. No. 469, Aug., 1952.

(4) Burke, B. S.: The dietary history as a tool in research. J. Am. Dietet. A. 23: 1041, 1947.

(5) Darby, W. J., Densen, P. M., Cannon, R. O., Bridgforth, E., Martin, M. P., Kaser, M. M., Peterson, C., Christie, A., Frye, W. W., Justus, K., McClellan, G. S., Williams, C., Ogle, P. J., Hahn, P. F., Sheppard, C. W., Carothers, E. L., and Newbill, J. A.: The Vanderbilt cooperative study of maternal and infant nutrition. 1. Background. 2. Methods. 3. Description of the sample and data. J. Nutrition 51: 539, 1953.

(6) Darby, W. J., McGanity, W. J., Martin, M. P., Bridgforth, E., Densen, P. M., Kaser, M. M., Ogle, P. J., Newbill, J. A., Stockell, A., Ferguson, M. E., Touster, O., McClellan, G. S., Williams, C., and Cannon, R. O.: The Vanderbilt cooperative study of maternal and infant nutrition. 4. Dietary, laboratory and physical findings, in 2,129 delivered pregnancies. J. Nutrition 51: 565, 1953.

(7) Dieckmann, W. J., Turner, D. F., Meiller, E. J., Savage, L. J., Hill, A. J., Straube, M. T., Pottinger, R. E., and Rynkiewicz, L. M.: Observations on protein intake and the health of the mother and baby. 1. Clinical and laboratory findings. J. Am. Dietet. A. 27: 1046, 1951.

(8) Dieckmann, W. J., Turner, D. F., Meiller, E. J., Straube, M. T., and Savage, L. J.: Observations on protein intake and the health of the mother and baby. 2. Food intake. J. Am. Dietet. A. 27: 1053, 1951.

(9) Macy, I. G.: Nutrition and Chemical Growth in Childhood. Vol. I. Evaluation. Springfield, Ill:. Charles C Thomas, 1942.

(10) Macy, I. G.: Nutrition and Chemical Growth in Childhood. Vol. II. Original Data. Springfield, Ill.: Charles C Thomas, 1946.

(11) Macy, I. G.: Nutrition and Chemical Growth in Childhood. Vol III. Calculated Data. Springfield, Ill.: Charles C Thomas, 1951.

(12) Macy, I. G., Moyer, E. Z., Kelly, H. J., Mack, H. C., DiLoreto, P. C., and Pratt, J. P.: Physiological adaptation and nutritional status during and after pregnancy. J. Nutrition 52: (Suppl.) April 1954.

(13) Moyer, E. Z., Kelly, H. J., Macy, I. G., Mack, H. C., DiLoreto, P. C., and Pratt, J. P.: Nutritional Status of Mothers and Their Infants. Detroit: Children's Fund of Michigan, 1954.

(14) Food and Nutrition Board: Recommended Dietary Allowances, Revised. Natl. Research Council Rep. & Circ. Series No. 129, Oct., 1948.

(15) Burke, B. S., and Stuart, H. C.: Nutritional requirements during pregnancy and lactation. J.A. M.A. 137: 119, 1948.

(16) Turner, D.: Handbook of Diet Therapy. Rev. ed. Chicago: The University of Chicago Press, 1952.

(17) Donelson, E. G., and Leichsenring, J. M.: Food composition table for short method of dietary analysis, (revised). J. Am. Dietet. A. 21: 440, 1945.

(18) Kaucher, M., Moyer, E. Z., Williams, H. H., and Macy, I. G.: Adequacy of the diet during lactation. J. Am. Dietet. A. 22: 594, 946.

(19) Bowes, A. deP., and Church, C. F.: Food Values of Portions Commonly Used. 6th ed. Philadelphia: College Offset Press, 1946.

(20) Bureau of Human Nutrition and Home Economics in cooperation with National Research Council: Tables of Food Composition in Terms of Eleven Nutrients. U.S.D.A. Misc. Pub. No. 572, 1945.

(21) Thomas, R. U., Rutledge, M. M., Beach, E F., Moyer, E. Z., Drummond, M. C., Miller, S., Robinson, A. R., Miller, O. N., Coryell, M. N., and Macy, I. G.: Nutritional status of children. 13. Accuracy of calculated intakes of food components with respect to analytical values. J. Am. Dietet. A. 26: 889, 1950.


## Anti-Stiffness Factor in Honey

Honey right from the comb, which has not been heated commercially, and wax from the comb can relieve stiffness in joints of guinea pigs, according to a report made before the Federation of American Societies for Experimental Biology by Julia Church, Oregon State College.

Moderate wrist stiffness in guinea pigs, similar to arthritis in man, was cured within a week by daily doses of ½ gm. honey or wax. More severe cases improved in a week's time. As in arthritic patients, the guinea pigs lacking this unknown "x" vitamin in unheated honey suffer from irregular bone formations, and some movable bones become immovable.

Other animals fed a diet lacking "x" vitamin were treated with honey which had been boiled 30 min. The wrists of these animals remained slightly to severely stiff after treatment.

# Interpersonal Relationships in Dietetics[1]

**ROY BRENER, Ph.D.**

*Chief Clinical Psychologist, Veterans Administration Hospital, Hines, Illinois*

THE goal toward which the dietitian works is the health and welfare of the people to whom her services are directed. In attaining this goal, she may have direct contact with a patient in a hospital, a mother in a community clinic, an employee in the lunch-line of the cafeteria of an industrial plant, or a student in a high school lunchroom. In other situations her work may be administrative, educational, or supervisory, and she may have little or no contact with the ultimate recipient of her services. Whatever her situation, her success in fulfilling her professional role depends to a great extent on how successful she is in her interpersonal relationships.

The emphasis on interpersonal relationships in no way negates the fact that the dietitian is concerned with food and its preparation and with the technical knowledge of the science of nutrition. The important thing to note, however, is that food and scientific data are the means and not the end. It is the patient or customer who eats the food and who must understand and accept the regimen which the dietitian outlines. The cook, baker, meat-cutter, and kitchen helper are the ones who do the actual work of preparing the food. It is the clerk who types the menus or instructions, and it is the supply officer who expedites the requisitions. The doctor interprets the role of the dietitian to the patient, and the nurse supervises ward routine and activity so that meals may be served on time. Indeed, it is the ward aide who is often the most successful in gaining the cooperation of a recalcitrant patient.

These and many persons not mentioned here have responsibilities and perform duties that are closely related to the dietitian's. Good human relations with them is necessary if the dietitian is to get gratification from her work other than financial remuneration and the feeling that she has "done her duty." Nothing can be so frustrating and tension-producing as to work in an atmosphere of grievances, hostilities, disappointments, and subtle sabotage of one's efforts. In such an atmosphere, one's work may begin to be perceived as a necessary evil, as something one does only to make a living. Healthy interpersonal relationships can help make one's work a pleasant experience rather than something to be endured in the process of making a living or of rendering a professional service.

In this paper it is our plan to highlight some of the problems of interpersonal relationships with three major groups that are the most frequent areas of interaction for the dietitian: (a) the patient or customer, (b) fellow professional workers, and (c) non-professional personnel. We shall first consider some of the problems that apply more specifically to each of these areas, then some of the problems common to all of them, and, finally, an approach to a way of dealing with all of these common problems.

## WORKING WITH PATIENTS

It might be well to begin with the patient or customer since this group is the one toward which the work of the dietitian is directly focused. Most of the following examples concern patients in a hospital setting. However, the basis of the attitudes toward food and nutrition are fairly universal, and although they may be accentuated in the patient, they will also be true of other consumers of food as well.

To begin with, it is important to recognize what food, or the deprivation of it in any form, may mean to the individual. For one thing, it is often a symbol of identification with one's national or cultural group. Many a clinic nutritionist can give examples of the occasions when she has met with extreme resistance to a dietary regimen because it has called for certain foods that are forbidden from a religious point of view or because it has restricted the use of certain foods that are traditional in the patient's culture. Where the dietitian has understood the problem in these terms, she has often found it possible, with adequate substitutions, to break down these resistances and to have the patient become

[1] Presented before the Illinois Dietetic Association in Chicago, on March 11, 1954.

not only cooperative and pleasant, but also deeply grateful for her services.

Food also is a symbol of status. We come to think of certain foods as being better than others regardless of their taste or nutritional value because being able to afford them gives us a feeling of "belonging." Certain other foods become identified by many individuals as "poor man's" foods. Many a hostess, expecting special guests, will go to great lengths to get a special brand of imported food, which is really no better than the domestic brand.

On a more personal level, food comes to be identified for some of us as a symbol of punishment or reward. A patient who had a strong dislike for vegetables was able to trace this attitude to early childhood experiences when he was forced to eat all of the vegetables or be deprived of the dessert. Another patient found it difficult to accept a dietary regimen because it involved a denial of certain foods. He associated this restriction with incidents in his earlier life when he occasionally was punished for misbehavior by having to skip a meal. It is common experience that in a time of stress or anxiety our eating habits may be considerably affected. Many people will lose their appetities. Since physical illness often creates additional tensions and stresses, the dietitian may find that the patient is a "feeding problem" in addition to the dietary limitations imposed on him by the physical condition itself. Or, it may work the other way. Food may become a substitute for other things when we are unhappy or anxious. Many patients in the hospital begin to make excessive demands for additional foods or for special kinds of foods. The same explanation applies to the behavior of the average individual who "raids the ice box" or who gets a lift from an extra dessert when the "going gets rough."

The above are but a few examples of the many kinds of problems that center around food and diet. These problems may become accentuated when the individual is ill. An understanding of these problems will result in more successful handling of the nutritional needs of the patient. This holds true as well for other people whose feeding is the responsibility of dietitians in schools, institutions, and industrial plants.

Presented below are a series of questions raised by experienced dietitians at an institute held by the Veterans Administration several years ago. These questions dealt with all areas of interpersonal relationships. Those immediately following deal with the patient relationships; others are presented in the appropriate places. The questions are not meant to comprise an exhaustive list of the problems in this area; rather they are meant to be a random sampling of the kinds of situations the dietitian continually faces in working with patients. They indicate rather clearly that it is well nigh impossible to take care of the dietary needs of patients without becoming involved in the "human side" of the situation. Following are some of the questions:

If you contact your patients daily, how can you avoid becoming too closely identified with them, especially with the chronically ill?

In an open ward, how do you cope with a negative mob reaction to food or meals when visiting patients?

How can you possibly encourage an older adult to improve his eating habits when he claims he has managed to stay in good health for so many years by eating his obviously inadequate diet?

How can you tactfully refer a patient to Social Service when his concept of Social Service is that of offering him charity?

When instructing husband and wife together, how can you avoid the role of referee or peacemaker?

How far should you go in making substitutions for a complaining patient rather than trying to educate him to accept the foods on the regular menu? Or should you substitute foods at all?

How can you help the patient on a modified diet to accept his food without resentment?

In trying to become acquainted with a patient by talking about his interests, do you not run the risk of going too far afield from food?

Why is it so difficult to obtain a true dietary history from an obese patient? Why do some exaggerate the amounts they eat?

To what degree should reasoning be used with the patient who is a chronic complainer about food or hospital policy in general?

Why are so many patients with diabetes ashamed of their condition—and how can you change this?

What is a dietitian's responsibility when she sees a patient violating his diet in the canteen or on the ward?

How can you handle a patient who demands first attention—for example, being served his tray before any of the others and refusing to eat if he doesn't receive this attention?

How can you explain a diet to a patient and influence him to follow it when he has no confidence in his doctor's diagnosis or refuses to accept it?

How is it possible to keep one dissatisfied, grumbling patient from influencing others who go through a cafeteria line?

A careful scrutiny of the questions will show that they cover a wide range of problems in interpersonal relationships. They run the gamut from questions of technique in handling specific situations through concern about personal involvement and over-identification with the patient, to speculation about what's going on in the mind of the patient and why he feels as he does.

### WORKING WITH PROFESSIONAL PERSONNEL

Since the profession of dietetics is younger than that of medicine or nursing, the dietitian may find that a good deal of educating or "selling" is necessary before others will understand and accept her role. Furthermore, in this age of specialization, it becomes impossible for members of one professional group to be thoroughly conversant with the technical developments in another professional field. The doctor, for example, may find that much of what he learned about nutrition in medical school is out of date. The advances in his own field are so great that

he is hard put to keep up with them, much less with the latest developments in other fields. Small wonder, then, that the dietitian may occasionally find that her work is not well understood by the physician and that she may be asked to do things in the way of dietary instruction or preparation which are not in keeping with the best current practice.

This same specialization also means that no one individual can meet the total needs of the patient. The doctor may find little success in his efforts at long-term rehabilitation if he does not have the cooperation of an effective social service department which can help work through some of the family problems. The nurse, in turn, is stymied, if the physician does not follow through on standard routines and procedures. So, too, the dietitian will find her task more difficult if the doctor and nurse cannot or do not interpret her role to the patient where this is necessary.

Below is a sampling of the questions raised by dietitians in regard to problems arising in working with other professional groups:

How can you stimulate the doctor's interest in diet and recruit his help in giving classes?

How can you encourage the doctor with old-fashioned ideas about a particular diet to conform to the more standard, accepted diet which is currently in use?

How can you persuade nurses and doctors to convey positive attitudes toward food to the patient rather than negative ones which reflect their own likes and dislikes?

What determines how much a physician tells a patient about his diagnosis? How far should you go in explaining this to a patient? How do you know whether, from a medical viewpoint, you are saying too much or too little?

Some nurses feel that dietitians are "poaching on their preserve." How should they be "educated" to see that dietetics and nursing are two separate specialities that need not conflict?

When the doctor has cancelled a nourishment or a special diet for a patient, what is the best way to inform the patient, and who should do the informing?

When the doctor has prescribed a diet that is not dietetically correct or feasible, should you mention it to the doctor or should you go ahead and follow his orders?

How can the connotation of "cook" be removed from the word "dietitian"?

Again, it is apparent that there is a wide range of issues involving such diverse things as the status of the dietitian as a professional person and procedures to be followed in implementing an order or in attempting to correct a mistaken order.

### WORKING WITH NON-PROFESSIONAL PERSONNEL

In working with non-professional and non-administrative personnel, the dietitian has much in common with all individuals in a supervisory capacity. The general issues are pretty much the same for the dietitian with her kitchen helpers, the nurse with her aides, the foreman with his section hands, and the clinical supervisor with her clerks.

It is sometimes difficult for the dietitian to accept the intellectual limitations of some of her unskilled workers. Having had contact with other individuals of relatively high intellectual and educational levels during her academic training, she finds that it requires quite an adjustment to accept the fact that some of her newly assigned employees will be slow learners and will need repeated demonstrations of or instructions on even the simplest tasks. In training new employees, the dietitian often must become, among other things, an effective and understanding teacher.

But there are many other kinds of problems—generally more difficult because they are less tangible. These include such things as (a) welding a group of workers into a smoothly functioning team, (b) handling the disgruntled employee, (c) dealing with recurring tardiness in an employee who is otherwise very efficient and productive, and (d) ironing out difficulties between two employees who may be disrupting the morale of the whole group. Other examples of these problems are typified in the following questions presented by dietitians in discussing this area of their work.

How can you cope with the problem of experienced employees deriding newer ones because they are slower?

What methods can you use to keep young male and female workers on the job during duty hours when the two groups tend to mingle and "joke around"?

What type of motivation for better performance can be used when it seems unlikely that an employee can be promoted?

If you have an employee who is constantly on the defensive and who resents supervision, yet who does a good job, how can you help him become part of the service?

How can you help a food service supervisor direct the activities of the workers below him when he has been promoted from the ranks?

What motivation can you use to discourage employees from eating foods in the kitchens, a practice which they know is forbidden?

Only a minimum of the problems have been listed, but it is sufficient to give an idea of the range of the problems and their similarity to those encountered by others in supervisory situations.

### ASPECTS COMMON TO ALL INTERPERSONAL RELATIONSHIPS

It can be readily seen that in the three groups dealt with above there runs a common thread through many of the problems. In a single paper it is impossible to deal with all aspects of the problems of interpersonal relationships. An example of the general approach to the solution of these problems can be demonstrated by considering one basic principle that is common to many of them.

All individuals have in common the need to develop and maintain a sense of self-esteem. This is one of the underlying motivations behind the behavior of the patient who refuses to cooperate in following a diet, the doctor who may tend to minimize the importance of the role of the dietitian, and the kitchen helper who is continually at odds with

other employees or with the supervising dietitian. It is equally true of the dietitian who must find satisfaction and self-respect in her role as an individual as well as a member of a professional group. It helps considerably to put oneself in the place of the other. If one fully appreciates this need in others, he will be able to minimize the problems of interpersonal relationships. In many cases it will be unnecessary to learn techniques of handling the problem person or the problem situation. An awareness of the motivation causing the behavior will automatically indicate what one does to take care of the difficulty.

The question is often raised as to whether the art of interpersonal relationships can be learned. The answer is that it can be—with qualifications. One can learn attitudes and develop skill in appraising oneself and others. In this way, it is possible to become more flexible in human relationships. It becomes easier to be tolerant of a problem or difficulty and to be much more free and versatile in coping with a situation. Learning only techniques or rules for handling a specific problem may be worse than useless. It may be harmful in the sense that it encourages the individual to hide behind the excuse that he has "done all the right things and given the other person every possible chance," instead of recognizing that an interpersonal relationship is a two-way street. To handle it effectively, one must recognize that feelings and attitudes are coming from both directions and that control and regulation must be handled in both directions.

SUMMARY

In this paper we have dealt with the problems of interpersonal relationships in dietetics. Emphasis was on the interrelationships of the dietitian with three main groups: (a) the patient or client, (b) other professional workers, and (c) non-professional personnel. Specific examples were given of problems in all of these areas. In addition, a common core to many of these problems was suggested. A method of approaching these common problems was also recommended. Finally, the view was presented that it is possible to develop attitudes and understanding that would facilitate good interpersonal relationships and that would make the work of the dietitian a successful professional performance as well as a gratifying personal experience.

## Psychology Views Kitchen Fatigue

Physiologists define fatigue as a state of relative unresponsiveness in cells after excessive activity. However, few people doing kitchen work ever tire their muscles to the point of fatigue the physiologist witnesses in his laboratory. The fatigue experienced in day-to-day living is tiredness, lassitude, weariness.

Few of us tire because our muscles are overloaded. To a large extent, it is a state of mind, an attitude. Probably the most common cause of fatigue in the kitchen is a desire, which we may or may not recognize, to be somewhere else, doing something else. Grief may make every task a tiring effort, or concern over finances, children, and the dozen other things we may worry about—the "anxieties of everyday life— can make us tired excessively in doing just the routine things at business or in the kitchen.

Also, to some women, housework, and particularly the kitchen, symbolizes women's inferior position. It may symbolize the death of a woman's dreams of "better things"—a career, a profession. In these circumstances, the fatigue is one form of a protest against an unwanted job.

And at times the homemaker may feel unappreciated. Fatigue under these circumstances is understandable and should not send one off seeking the aid of the psychiatrist.

In some women, however, the fatigue is not so easily explainable on the basis of day-to-day events. It is often a symptom of emotional difficulties, of a depressed, melancholic state. At other times, long-standing fatigue is a sign of prolonged anxiety—anxiety which appears to be illogical, yet severe and incapacitating. Whatever the reason, almost all of these individuals are using their energies fighting against imaginary situations and foes, and there's not energy left for the necessary everyday things. Failure leads to more failure and this to greater conflict and greater fatigue.

It would be unwise to assume that all fatigue is the pure result of psychological conflicts and problems. Some women may push themselves and actually exceed their physical reserves of energy. Such overwork is not uncommon, but here again, one must ask, as the modern psychologist and psychiatrist does, "Why?"

Also, there can be no denying that fatigue frequently is a symptom of physical illness—tuberculosis, cancer, anemia, glandular dysfunctions, heart disease, and other less fearsome ills. The family doctor's evaluation will often lead to an uncovering of the cause—physical, psychological, or both. This in turn will lead to the proper type of treatment.

Thus kitchen fatigue always has some meaning, and usually some remedy. Occasionally it is the outgrowth of more serious physical illness or emotional instability. In this case, treatment can be successful and the condition alleviated or cured.

*—Franklin G. Ebaugh, M.D., University of Colorado, Denver, writing for the Kitchen Reporter, June, 1953.*

# Psychodrama as a Teaching Aid

JOHN S. PEARSON[1] and MILDRED J. SKALITSKY[2]

AMERICAN education at all levels has, to quite an extent, recognized the large element of truth in the old adage, "we learn by doing." For example, the somewhat arid course in "civics" which many of us endured in junior high school has in many instances been enriched by a more dynamic approach in which students learn the principles of democratic government through the creation of a "boys' state" or "girls' state." Here the boys and girls conduct simulated campaigns, elections, and other governmental operations and learn about government by actually setting up and operating a government in miniature. At the professional and graduate level we have seen an increasing tendency toward making the internship or other practical experience requirement an intrinsic part of the curriculum as a prerequisite to the award of a degree or certificate.

There remain, however, areas in which the axiom, "there is no substitute for experience," appears to hold almost completely and wherein internship or apprenticeship is only partially effective in preparing the student for problems she must face. This is particularly true with respect to problems of the dietitian's emotional reactions arising in interpersonal relationships. For example, a young dietitian, when she first faces the problem of discharging an undependable and unsatisfactory food service worker, probably seldom has the desirable feeling of personal security and adequacy in handling the affair. Probably no amount of traditional classroom teaching and observation of more experienced personnel is going to give her this sense of adequacy and security. Yet, more often than not, she will be faced with an accumulation of such problems when she assumes full professional responsibility in her first position.

It is impossible to estimate the number of instances wherein the lack of preparation for an emotion-laden situation of this kind has led directly to a reduced level of professional functioning or even to the loss to the profession of a well trained and potentially capable dietitian, but we are certain that both have occurred. Such occurrences apparently arise when the dietitian, unprepared for dealing with a problem involving interpersonal conflict, experiences a subjective sense of failure in meeting the problem. This leads to fear of future failure in similar situations and an avoidance of them. This avoidance may take the form of putting up with poor conditions in the department, unwillingness to seek or to take increased responsibility, or even total withdrawal from the field of dietetics.

We do not mean to imply that such instances are frequent, that this is a problem unique to dietetics, or that present educational methods are completely ineffective in preparing students for meeting such problems. We do feel, however, that there is room for improvement in all areas of professional education and that *action methods* provide a new approach worth consideration.

## ROLE-PLAYING AS A TRAINING DEVICE

In the past few years in this country, there have been several independent developments of techniques and uses of action methods. Life insurance companies have been successful in teaching salesmen by having an experienced representative of the company play the role of a resistant prospective customer while individuals from the class try out their salesmanship before the group. In World War II, governmental agencies sought to select and train individuals for dangerous missions by requiring them to play various roles in rapidly changing situations requiring unusual "nerve" and stability. Recently, in American industry, there has been increasing use of role-playing techniques in the training of managerial and supervisory personnel and in labor-management relations.

Perhaps the most significant developments have stemmed from the work of Dr. J. L. Moreno. Since 1934 he has been active in this country following earlier work in Vienna. Although Dr. Moreno has been particularly interested in applying his psychodramatic techniques to the treatment of psychiatric patients, his theories and methods have found wide

[1] Clinical Psychologist, Rochester State Hospital, Rochester, Minnesota.

[2] Supervisor of Professional Education, Department of Nutrition, St. Marys Hospital, Rochester, Minnesota.

application in other fields as well. A few of them have special significance for the teaching dietitian and will be discussed here.

### ROLE-PLAYING PROCEDURE

In psychodrama for teaching or training, the instructor falls naturally into the role of the *director*, who seeks to guide the action—usually without entering into it herself. As in any dramatic production, psychodrama requires a *star* (an individual selected by the director, the audience, or by herself to play a particular role). Next, there are the *auxiliary egoes*—persons selected from the audience by the star, the director, or the audience to play various roles in relation to the star. Finally, there is the *audience*, or group.

Properties and settings are deliberately held to a minimum. A small table may simulate anything from the desk of a hospital superintendent to a dishwashing machine. Any space large enough to accommodate the actors and give them a little freedom of movement before the group may serve as the psychodramatic stage.

The director selects a problem or situation, preferably as an outgrowth of discussion by the group. The problems which lend themselves to psychodrama are of almost infinite variety; a couple of examples may suggest others. For instance, the teaching dietitian may ask, "Just why did that unpleasantness arise last Tuesday with the head nurse on C-6 and how might the situation have been handled better?" Or, "What can we do with doctors on the staff who consistently forget to order dietary instruction for patients until they have their bags packed and are half-way out the door?"

When a problem has been selected, the director chooses a star and proceeds with the *warm-up*. This involves questioning the star so that she will describe herself in the role she is to take and set the stage for the action both physically and emotionally. Next, the auxiliary egoes are chosen and given a brief warm-up, usually by the star. The action is then initiated with each actor seeking to speak, feel, and act like the personality she is portraying.

The director has at her disposal several techniques which assist the actors in exploring the problem more fully. Among those of particular importance are:

(a) *Role reversal*, which involves having the star and one of the auxiliary egoes change places, both physically and psychologically, and continuing the action in their new respective roles.

(b) *Asides*—as in regular theatrical practice, the use of asides means that the actors speak their inward thoughts to the audience with the assumption that these comments are not heard by the other actors.

(c) *Auto-drama*, which involves having the star enact several roles simultaneously, adopting the physical position and personality characteristics of each in turn as she enacts different roles.

(d) *Soliloquy*, in which the actress is by herself on the stage and speaks freely the thoughts that come to her mind.

An illustration of the use of psychodrama in teaching dietetic interns is provided in the transcript below. It demonstrates the manner in which one instructor uses this method.

In supervising dietetic interns, the instructor often finds problems, the solution to which would be of excellent educational value for the entire group. To make the sharing of such information possible, two in-service conferences are held each week at Saint Marys Hospital, one in administrative areas and the other in clinical areas. Included in the planned agenda are discussions of teaching, clinical, and administrative problems and clarification of procedures and policies.

The latter half of each meeting is devoted to discussion, questions, and problem-solving. There are occasions when the use of psychodramatic methods hastens the reaching of a solution or leads to a more sympathetic understanding of a situation. For example, a dietetic intern conscientiously going about her work may become discouraged over one of her out-patients, who fails to lose weight despite dietary instruction. She may express her difficulty in the following manner.

MISS D——

I wish someone would tell me what to do! Most of you know Bertie, the cleaning woman on first floor. She's the one who used to work in the cafeteria. Well, about two months ago, she had an attack of headache and dizziness and was off duty for several days. It turned out that her blood pressure was very high then, and still is, even with the medications she is taking. You know how heavy she is, and the doctor insists she must lose between 50 and 60 lb. if she hopes to improve her condition to any appreciable degree.

MISS L—— (another intern)

That sounds simple. Why not just give her instruction in a reducing diet?

MISS D——

Oh, I haven't finished my story. We *did* that, weeks ago, and she was very interested and seemed to understand the diet. She even volunteered to come in every week to have her weight loss recorded!

MISS N——

Why, that sounds wonderful. You can really see how she is progressing.

MISS D——

That's just the trouble. She isn't. She followed the diet very carefully for the first three or four weeks, but now she is feeling better and is working again, and she has stopped losing. In fact, last week when she came in we found that she had *gained* 2 lb. I again discussed the diet with her and she promised to follow it to the letter—and just this noon as I passed the cafeteria, I saw her eating a piece of coconut meringue pie! Really, I'm so discouraged!

INSTRUCTOR

You surely are having a good opportunity to follow up on your teaching, Miss D____, but we can't have you feeling like such an utter failure. And, I suppose you're wondering what in the world you can say to Bertie the next time she comes in . . . ?"

MISS D____
(*Eagerly*)

Yes, I just can't seem to feel properly sympathetic, especially after seeing her eat that pie! I'm afraid I'm so annoyed with her that all I want to do is give her a good scolding.

INSTRUCTOR

Well, I think that is a natural reaction. In fact, it happens so commonly that I feel it deserves more time for consideration than we can spend in class today. Since you won't be seeing Bertie in clinic until Monday, why don't we plan to devote our entire Friday session toward working out a solution? Miss D____, would you please see me a moment after class?

(*Others leave classroom.* MISS D____ *moves to a chair near desk.*)

Thank you for staying, Miss D____. I thought of something that might be helpful, if you are willing to try it. How would you like to follow a reducing diet like Bertie's for the next few days? I think I could make the necessary arrangements for you; how about it?

MISS D____

Oh, I'd love it! (*Sheepishly*) I've gained 8 lb. since I started my internship, and my uniforms have become a little snug, but you know how it is . . .

INSTRUCTOR
(*Laughing*)

Umm-humm . . . I'll see you in class Friday.

On the following Friday, the class is assembled for the scheduled conference.

INSTRUCTOR

No doubt you have all given some thought to the dietary problem cited by Miss D____ at our last meeting. Since there are a number of emotional factors involved in this particular situation, it seems to me that a satisfactory approach toward solution might be through use of psychodrama. Let's try it. Miss D____, would you take the role of Bertie? (*Miss D____ moves to the front of the room*) How would you describe yourself?

MISS D____ (as Bertie)

Well, I'm a good-natured, rather large woman about fifty-five years old—the motherly type—and I weigh 242 lb.

(*Laughter from the group*)

INSTRUCTOR

And you've been coming to the clinic because of your high blood pressure and were advised to follow a reducing diet. I understand that, of late, things don't seem to be going so well with regard to the latter.

MISS D____ (as Bertie)

No, they aren't. I was doing so well, and now I'm not. Since last week I've gained another pound, and I don't know *what* that young dietitian will say!

INSTRUCTOR

All right. Let's find out. Miss C____, how would you like to play the part of the dietitian and interview Bertie?

(*Miss C____ steps forward and seats herself at the desk.*
*Miss D____ steps outside the room and appears in the doorway a moment later.*)

MISS C____ (as dietitian)
(*Looking up and seeing Bertie standing hesitatingly at the door*)

Why, Bertie, good afternoon! Come right in. (*She stands up and moves forward with hand outstretched*) And how have you been feeling, Bertie? I was so pleased to see you back at work again.

(*Bertie seats herself, settling back in the chair with an obvious sigh of relief*)

MISS D____ (as Bertie)

Oh, yes, I'm feeling much better, but I still get those dizzy spells now and then. It's a blessing I can work, though, with Jake in bed with his lame back. That's my husband, you know.

MISS C____ (as dietitian)

My, I'm sorry to hear that your husband isn't well. You certainly are having a run of hard luck. How are the children—is your married daughter still living with you?

MISS D____ (as Bertie)

Yes, and it's lucky we have her to take care of Jake and do the housework. There's my other daughter at home, too, but she works all day at the insurance office. She's planning to be married in June, so we can't count on her help much longer. (*Sighs*) So I've just got to keep well and on the go. That's why I'm so anxious to keep on losing weight.

MISS C____ (as dietitian)

I'm so glad to hear you say that Bertie. We were concerned last week when we weighed you and found you had gained. We were afraid you had lost interest in dieting.

MISS D____ (as Bertie)

Well, I can't say that I enjoy being on a diet. Sometimes when things pile up, like when I come home tired and Jake's had a bad day and the neighbor's radio is blaring, I'd just like to take off my shoes, have a cup of tea with lots of cream in it, and eat everything in the icebox.

MISS C____ (as dietitian)
(*Sympathetically*)

Some days are like that.

[NOTE: The director might have had the actors institute the use of *asides* at this point with good effect.]

MISS D____ (as Bertie)
(*Responding to her tone, and happy to have someone listen*)

It seems like when I'm nervous, I just get *so* hungry for a good old-fashioned square meal! Have you ever been on a diet, Miss C____ ?

MISS C____ (as dietitian)

You know, Bertie, I think you have something there. I have a friend who has to eat all her food without salt, and she says there are times when she would give anything for a ham sandwich and a big dill pickle.

MISS D____ (as Bertie)
(*Laughing*)

Well, I can't say I care much for pickles. But my daughter makes awfully good cakes and rolls, and I do miss them.

MISS C____ (as dietitian)

It must be difficult to eat plain foods when the rest of the family are enjoying the things you'd like to have.

MISS D____ (as Bertie)

Especially those cakes and desserts! And that's something I wanted to ask you about, Miss C____. I found a nice chart of calories in back of one of those new cook books my daughter got for a shower present; so I've been doing a little experimenting. I added up the calories in the list of foods you made out for my lunch, and I found it just equals the calories in a piece of pie. Well, I'm awfully fond of the coconut pie they serve in the cafeteria, so when it was on the menu the other day, I substituted pie and coffee for my lunch. My, it was good!

(*Miss C____ leans forward in consternation*)

INSTRUCTOR

All right. Cut. Now, class, what did you think of the way this dietitian handled the interview?

MISS E____

Miss C____ seemed to put Bertie at ease during the interview. The way she met her at the door was good, and so was the fact that she encouraged Bertie to talk about her problems.

MISS F____

She definitely conveyed to Bertie that she was interested in her reaction to the diet and her difficulties.

INSTRUCTOR

All right. Anything else?

MISS G____

Couldn't the dietitian work out some way to make the patient happier about her diet? Bertie seems to be convinced that she has to lose weight, but I think it would help if she could be given something tangible to look forward to as a sort of reward.

MISS F____
(*Thoughtfully*)

She'll have to explain the differences in nutritional values of foods, too.

MISS E____

I still think the best point of the interview was the way she got Bertie to 'fess up by encouraging her to tell her trouble.

INSTRUCTOR

Good. We seem to be making progress. Suppose you reverse roles now. (*Miss C____ and Miss D____exchange places*) Miss C____, go back to where Bertie made that remark about substituting pie for her luncheon menu.

MISS C____ (as Bertie)

Yes, I'm awfully fond of desserts, and the other noon I substituted pie and coffee for my regular lunch; that was all right, wasn't it?

MISS D____ (as dietitian)

Well, no, Bertie, I'm afraid I can't quite agree with that. (*Bertie looks crestfallen*) I can see why you might *think* it was all right, but there are certain nutritional elements that you need every day to keep up your strength, and we have planned your menus with that in mind. While cutting down on calories, we don't want you to miss any of the essential protein, minerals, and vitamins. It's like shopping, Bertie. You know how much you can save if you look around for bargains. Well, on a reducing diet you just have a limited number of calories to "spend," so it's a good idea to be careful to select the best values. Eating that piece of pie was like spending half your pay for a fancy, expensive lamp shade. It's pretty and decorative, and you'll enjoy it—but next week you might be short on money to pay the grocery bill. Do you see what I mean?

INSTRUCTOR

All right. Cut. How did the rest of you react this time?

MISS G____

I think that was a very good answer—to suggest shopping for calories. How'd you ever think of it, Miss D____?

MISS D____

Believe me, I *couldn't* have, a few days ago. But I've been on a reducing diet myself since our last class, and it's done drastic things to my perspective! I expect I'll still get irked with people who *know* they have to diet and haven't the will power to stick with it, but from now on it will be more of a challenge to do something about it.

MISS L____
(*Impatiently*)

What I can't understand is why people just don't make up their minds to do it—and then *do* it.

INSTRUCTOR

Hmm . . . wonder what kind of a diet we can suggest for Miss L____. (*Laughter from the class*) Seriously, now, I think what has been covered in class today has brought out several valuable lessons on how to deal with patients such as Bertie. In the first place, try always to keep your own emotional reactions from interfering with your ability to handle matters in a professional manner. Second, explore a problem fully before you come to any conclusions or make any recommendations; then try to understand the patient's viewpoint and express your suggestions in language he can understand. For example, Miss D____, when you were discussing nutritive essentials with Bertie, it might have been even more effective if you had spoken in terms of the foods themselves—milk, meat, eggs, fruit—rather than referring to protein, minerals, and vitamins. Finally, you should try to focus the patient's attention on the positive side, on the good things that will follow if he stays on the prescribed diet.

(*Students nod affirmatively*)

I think we will continue now with a further discussion of ways to provide continued motivation. We might talk a bit, too, about how to help the patient establish a maintenance program after the weight reduction has been achieved.

The example above illustrates the use of psychodrama in teaching dietetic interns. We feel that the approach has been used effectively in outlining problems and stimulating discussion in areas that would be difficult to reach by other means. This fact perhaps illustrates one important point, namely, that the best way to become familiar with action methods is to use them. Aside from some basic orientation to the principles and techniques, don't

allow a lack of background in dramatics or behavioral science to deter you from looking for applications of action methods in your own situation. A few pertinent references are listed at the end of this paper to provide some additional orientation.

### LEARNING TO USE THE PSYCHODRAMA

Two methods of becoming accustomed to the use of action methods may be of help to you. The first may be of use, whether you are in a teaching situation or not. Think of a problem facing you at the present time and attempt to work it out in a psychodrama. Say, for example, that you are wondering how to "sell" your superintendent or supervisor on the fact that you need an assistant. Get a friend who is familiar with the situation to play your role while you take the role of the superintendent or supervisor. Put yourself in his place; think as he will think and marshall the arguments he will use. Also, observe the approach that your friend uses when she puts herself in your role. It will give you some hints as to how others see you. Then, reverse the roles; take your own role and have your friend play the superintendent. The whole procedure will take only a few minutes, but you will probably find that it will give you greater confidence and a feeling of having met and mastered the situation previously when you actually go in to take the matter up with the superintendent. You will probably find also that it has demonstrated the ease and value of psychodrama to you.

The second method of learning to use psychodrama is to arrange a demonstration in which the director, the star, and the auxiliary egos have rehearsed their roles rather thoroughly before appearing in front of the group. It is easy and effective to show the "wrong" way of doing something, to have the group make criticisms, and then to have the actors go through it again and do it the "right" way. For most effective use, however, this approach should serve only to make you, the teacher, relatively comfortable in the psychodramatic role of the director so that you may be prepared later to lead the group in the spontaneous, unrehearsed psychodramas which produce the greatest degree of group and actor identification and participation and hence the most benefit to the participants.

### CAUTIONS IN USING PSYCHODRAMA

We have emphasized the ease and general applicability of psychodrama and stated that persons with slight training in behavioral science may safely and effectively use the techniques in teaching situations involving emotional reactions in interpersonal relationships. Perhaps it is well also to touch on the risks and cautions to be observed.

Basically, psychodrama is a "safe" technique with a number of intrinsic safeguards independent of the skill of the director. Primary among these is the fact that an individual may in the last analysis console herself that it is "merely play acting" and may laugh off any shortcomings or peculiarities which may come to light on the psychodramatic stage. Nevertheless, the inexperienced director should avoid getting out of her depth in treating specific personality problems in particular individuals when using the method as an instructional technique. One might, for example, "itch" to try psychodrama as a means of bringing a dietetic intern to recognize her own problems in regard to need for weight reduction or might find oneself setting up the role of a doctor, nurse, or other professional person in terms of a particular individual on the staff with some manifest personality problem which affects relationships with the dietary department. While it is possible for a person with sufficient skill and experience to handle such a situation effectively, in general it is better to recognize one's limitations by avoiding attempts to solve individual emotional problems on the psychodramatic stage unless possessed of a good background in human behavior.

### SUGGESTED REFERENCES

HAGAN, M., AND KENWORTHY, M.: The use of psychodrama as a training device for professional groups working in the field of human relations. Group Psychotherapy 4: 23 (April), 1951.

MORENO, J. L.: Who Shall Survive? 2nd ed. New York: Beacon House, 1953.

MORENO, J. L.: Psychodrama. Vol. 1. New York: Beacon House, 1946.

Role-playing symposium. MOODY, K. A.: Role-playing as a training technique. MACHAVER, W. V., AND FISCHER, F. E.: The leader's role in role-playing. SPEROFF, B. J: The group's role in role-playing. STAHL, G R.: Training directors evaluate role-playing. Role-playing bibliography. J. Indust. Training 7: 3, 6, 17, 21, 30 (Jan.–Feb.), 1953.

---

Recently a Montana dietitian wrote to the A.D.A. office regarding the availability of a single sheet giving the diabetic exchange lists for use in the handbook for nursing homes and small hospitals the Montana Dietetic Association is preparing. The A.D.A. office replied by wire.

When the telegram was received in Montana, a confused telegraph operator called our member, saying, "I have a wire for you, but I can't understand what it means; hope you do. Here it is: 'Ada has no single sheet.' Now, I don't know who Ada is, but she doesn't have a *single* sheet! The rest doesn't make sense either, 'cause it says, 'Suggest you contact U.S.-P.H.S., Diabetes Section, Boston.' Does that make sense to you?"

The dietitian replied, "Yes, I understand it; it is very plain."

# Attractive Menu Items[1]

**DOROTHY DICKINS, Ph.D., A. ALEXANDER FANELLI, and VIRGINIA FERGUSON**

*Departments of Home Economics and Sociology, Mississippi Agricultural Experiment Station, State College, Mississippi*

IN STUDYING attractiveness in menu items, it is customary to ask the subject to rate a list of foods of one type, such as vegetables, entrées, desserts, beverages, and so on, by degree of preference, i.e., very good, good, medium, tolerated, or disliked, and then to rate additional lists of dishes of other types. The method used in this study, that of having the person rate one menu in comparison with another and one type of menu item with another of the same type, has the advantage in that the situation is realistic. Choices are not made in a vacuum but are presented as alternatives. This is the way menu planning is usually done.

It is the purpose of this paper to suggest that two types of motivation operate in the selection of menus: (a) one in which a menu is selected because it contains a number of well liked foods or menu items; (b) the other in which the menu chosen seems to depend on the presence of a single item of unusual attractiveness.

An attempt has been made to differentiate between two kinds of menu items or foods: (a) "liked" items, i.e., foods which are preferred by large proportions of a population when respondents are confronted with a two-choice situation and which have "high general attractiveness"; and (b) "magnetic" items which, though they may be preferred by only a minority, are so well liked that their "specific attractiveness" will override dislike for (or indifference to) other items included in the same menu.

When the first motivation is operating, subjects tend to choose one menu in preference to another because it contains a number of "liked" items. Where the second motivation is operative, subjects tend to select one menu because it contains a "magnetic" item.[2] In such cases, the menu containing the "magnetic" item tends to be chosen even though many of the included foods are less well liked than comparable items on the other menu.

## METHOD

The analysis in this report was suggested from data taken from two research studies now in progress in the Home Economics Department of the Mississippi Agricultural Experiment Station. In the first study (an investigation of factors affecting use of home-produced foods of 443 white and Negro farm families), preferences of homemakers and their husbands for two dinner menus were ascertained. The first, Dinner *A*, was composed of items ordinarily purchased by the families in the study; the second, Dinner *B*, was made up of foods usually produced at home for family use.

Each homemaker was asked the following questions:

You have the food to cook either of the following dinners:

| *Dinner A* | *Dinner B* |
|---|---|
| Wieners | Fried middling (side meat) |
| Boiled dried beans | Turnip greens |
| Boiled rice | Baked sweet potatoes |
| Loaf bread | Cornbread |
| Canned peaches (store bought) | Egg pie |
| Coffee | Buttermilk |

Which would your husband like best? ..... Why?.....

.....

Which would you like best? ..... Why?.....

.....

In the second study, made in the same two rural counties, attitudes of 680 white and Negro school children (from both farm and nonfarm families) towards food production and processing activities in the home were investigated. Included in the classification schedule of this study were the following questions:

1. Check which of the two foods you like best in each line. NOTE: *If you like both the same, check both; if you dislike both, check neither.*

[1] Published with the approval of the Director, Mississippi Agricultural Experiment Station. Paper No. 355 New Series, August, 1953. Received for publication November 2, 1953.

[2] It should be evident that what we are calling "magnetic" menu items or foods are attractive only for certain respondents. For these respondents, however, they seem to possess attractiveness not found in other menu items.

(a) Wieners ..... or fried middling (side meat) .....
(b) Boiled dried beans ..... or boiled turnip greens .....
(c) Boiled rice ..... or baked sweet potatoes .....
(d) Canned peaches (store bought) ..... or egg pie .....
(e) Coffee ..... or buttermilk .....

2. Check the dinner you like best. *Check only one.*
(a) Wieners, boiled beans, boiled rice, canned peaches (store bought), and coffee .....
(b) Fried middling (side meat), boiled turnip greens, baked sweet potatoes, egg pie, and buttermilk .....

Data were obtained from the families in May and June 1952, and from the children at school during the survey of February and March 1953.[3]

## RESULTS

Dinner *B*, composed of home-produced foods, was most favored by both adults and children, Negroes and white people, as shown in Table 1.

Data on menu preference was obtained from 128 of the white and 61 of the Negro children of the families included in the first group.

There was more agreement between the fathers and mothers as to the best menu than between the parents and the children (Table 2). Ninety per cent of the white parents and 73 per cent of the Negroes agreed on their choices of meals. And, when white parents agreed on a menu, 64 per cent of their children also agreed. The proportion for Negro children was considerably higher, 79 per cent. However, when parents both chose Dinner *B*, 66 per cent of the white children and 85 per cent of the Negro children chose it. When both parents preferred Dinner *A*, 33 per cent of the white children but none of the Negro children chose it.

In the group in which the parents disagreed about the menu, however, there were 13 white and 16 Negro children. It is interesting that 70 per cent of both the white and Negro children preferred the same menus as did their mothers. Note, however, that menu preferences of husbands were obtained from wives—but, these wives should have known their husbands' preferences, since the menus about which they were questioned consisted of familiar foods which are commonly served in these rural areas.

Of the 844 reasons given for choice of Dinner *A* or *B* by homemakers for themselves and their husbands, most mentioned liking several or all of the items in the menu selected (Table 3) rather than one particular food. Some of the common replies were: "because I like the vegetables and buttermilk"; "because he likes middling meat, greens, and sweet potatoes"; "because I like coffee and canned peaches"; "because he likes the foods in Dinner *B*." This analysis suggests that choice of menus might result from liking several foods in it rather than one.

### *"Liked" Menu Items*

Children were asked to check the menu item they liked best, or, if they liked two equally well, to check both. These checked items were referred to as "liked" items. There was a striking agreement between boys

[3] A description of the samples will appear in reports of the two studies.

TABLE 1

*Percentage of respondents preferring each of two menus*

| MENU | WHITE RESPONDENTS | | NEGRO RESPONDENTS | |
|---|---|---|---|---|
| | Adults | Children | Adults | Children |
| | % | % | % | % |
| Dinner *A* | 21 | 32 | 27 | 16 |
| Dinner *B* | 79 | 68 | 73 | 84 |

TABLE 2

*Comparison of white and Negro children's menu choice with that of their parents**

| GROUP | NUMBER OF WHITE CHILDREN CHOOSING | | NUMBER OF NEGRO CHILDREN CHOOSING | |
|---|---|---|---|---|
| | Dinner A | Dinner B | Dinner A | Dinner B |
| Father and mother chose Dinner A† | 3 | 6 | 0 | 3 |
| Father and mother chose Dinner B† | 35 | 69 | 6 | 34 |
| Parents chose different dinners | 1 | 12 | 4 | 12 |

* All could not be included, since a few children or parents did not make a choice.

† When there was only one parent, the child was placed in the first or second category according to the menu chosen.

TABLE 3

*Reasons of husbands and wives for choice of dinner in 212 white and 231 Negro families**

| REASON FOR CHOICE | WHITE RESPONDENTS | | NEGRO RESPONDENTS | | TOTAL PER CENT |
|---|---|---|---|---|---|
| | Husbands | Wives | Husbands | Wives | |
| | % | % | % | % | |
| Liked one particular menu item | 20 | 19 | 24 | 26 | 22 |
| Liked two, three, or four items | 26 | 24 | 37 | 34 | 30 |
| "Just liked menu better or items in menu better" | 35 | 40 | 25 | 31 | 33 |
| Disliked particular items in other menu | 9 | 4 | 6 | 4 | 5 |
| Other reasons† | 10 | 13 | 8 | 5 | 10 |
| Total persons who made choice of menu..... | 203 | 210 | 203 | 228 | 844 |

* Includes replies only where choice was made. A few chose both or said they had no preference. Female heads of families are included in the wives' group and male heads in the husbands' group.

† Such as "healthier," "more vitamins," "not in diet."

and girls, both Negro and white, about which of the specific foods they favored when given a choice (Table 4).

It is interesting that although the majority of these children chose Dinner *B* when they had to choose between two complete dinners, some specific items on Dinner *A* were favored more than comparable foods on Dinner *B*, i.e., wieners over fried middling, peaches over egg pie. The fact that the same two items in Dinner *A*—wieners and canned peaches—were consistently favored by all of the children lends considerable support to the idea that they were really better liked regardless of which complete dinner was chosen. A substantial majority of children in each group checked these two foods. The foods which all groups favored in Dinner *B* were turnip greens, sweet potatoes, and buttermilk (Table 4).

Negro boys and girls, although they preferred these same foods, were more favorable than the white children toward wieners and much more favorable toward buttermilk. More also preferred turnip greens (especially Negro girls). White boys were more favorable to canned peaches and sweet potatoes than Negro boys; the girls, both white and Negro, showed little difference in checking these two items.

Another way to demonstrate the "likability" of the two Dinner *A* foods (wieners and canned peaches) is by the extent of "crossing the line," i.e., proportions of choices of wiener and canned peaches (Dinner *A* items) by children preferring Dinner *B*. In all four groups, more than half of the individual choices among children preferring Dinner *B* (Table 5) were for the meat and dessert of Dinner *A*. For wieners, these percentages were: 57, 58, 72, and 75; for canned peaches, 67, 66, 55, and 60. And, in every case, these foods were the only ones that received more than 50 per cent of the choices. In fact, there was a great difference in every case between these percentages and the average percentage for the other three items, the latter being much lower.

If we look at the other side of the picture, that is, the proportion of choices of Dinner *B* foods by those preferring Dinner *A*, the results were not as consistent, although the turnip greens, baked sweet potatoes, and buttermilk (Dinner *B* foods) had the highest percentages in every case. Among the Negro children, all three of these items received more than 50 per cent of the checks, while only sweet potatoes received as many by the white children. The lowest percentages of the three items favored by those choosing Dinner *A* were 43 for turnip greens by white boys and 43 for buttermilk by white girls.

To summarize, in every case the wieners and canned peaches in Dinner *A* were attractive enough to draw more than 50 per cent of the choices of respondents who said they preferred the total menu for Dinner *B*, and the three favorite items on Dinner *B* were attractive enough to draw 43 per cent or more of the choices of those who said they preferred Dinner *A*.

TABLE 4

*Percentage of white and Negro boys and girls* favoring specified menu items*

| MENU ITEM | WHITE CHILDREN | | NEGRO CHILDREN | |
|---|---|---|---|---|
| | Boys | Girls | Boys | Girls |
| **Dinner *A*** | | | | |
| | % | % | % | % |
| Wieners† | 68 | 75 | 83 | 87 |
| Boiled dried beans† | 46 | 41 | 34 | 27 |
| Boiled rice | 29 | 26 | 45 | 47 |
| Canned peaches | 75 | 77 | 64 | 76 |
| Coffee | 28 | 27 | 8 | 6 |
| **Dinner *B*** | | | | |
| Fried middling† | 43 | 36 | 27 | 27 |
| Turnip greens† | 60 | 58 | 69 | 81 |
| Baked sweet potatoes | 80 | 83 | 72 | 78 |
| Egg pie | 36 | 32 | 47 | 48 |
| Buttermilk | 81 | 68 | 93 | 91 |

* 183 white boys; 149 white girls; 166 Negro boys; and 182 Negro girls. Percentages choosing Dinner *A* were: white boys, 31; white girls, 33; Negro boys, 17; Negro girls, 14.

† Percentage preferring wieners or fried middling and dried beans or turnip greens does not total 100, because a few checked both items and a few neither item.

*Reasons for Menu Preferences*

It would seem that preference of the children for one menu rather than another depended primarily on the presence of *more* "liked" dishes in one than in the other, rather than on the presence of *one* "liked" dish. Respondents tended to swing to Dinner *B* where there were more "liked" dishes. We may illustrate here with Negro girls, 87 per cent of whom checked wieners; however, only 14 per cent chose Dinner *A* (with wieners) when they had to choose between complete meals, apparently because Dinner B contained more "liked" dishes.

It also seemed worth while to determine whether there were specific menu items which had "pulling power," i.e., "magnetic" foods in the sense that the children who chose them were more inclined to stick with that particular menu than the average respondents who preferred other dishes from the same menu. We have just noted that one of the "liked" items, wieners, had little of this "pulling power" or "magnetism."

As a matter of fact, there *was* an item in Dinner *A* which appeared to demonstrate considerable "pulling power," even though it was not a "liked" item for many respondents. This was coffee, which was favored by only 28 per cent of the white boys and 27 per cent of the white girls, and by extremely small proportions of Negro boys and girls, 8 and 6 per cent respectively.

When these "coffee lovers" had to choose between Dinners *A* and *B*, more than half of the white boys

TABLE 5

*Choice of complete dinner compared with individual foods preferred*

| FOOD | WHITE CHILDREN | | | | NEGRO CHILDREN | | | |
|---|---|---|---|---|---|---|---|---|
| | Boys | | Girls | | Boys | | Girls | |
| | Checked preferred item on Dinner *A* | Checked preferred item on Dinner *B* | Checked preferred item on Dinner *A* | Checked preferred item on Dinner *B* | Checked preferred item on Dinner *A* | Checked preferred item on Dinner *B* | Checked preferred item on Dinner *A* | Checked preferred item on Dinner *B* |
| Of Those Who Chose Dinner *A* | | | | | | | | |
| | % | % | % | % | % | % | % | % |
| Meat | 70 | 30 | 88 | 12 | 90 | 10 | 86 | 14 |
| Boiled vegetable | 57 | 43 | 49 | 51 | 43 | 57 | 32 | 68 |
| Cereal or potato | 37 | 63 | 37 | 63 | 50 | 50 | 33 | 67 |
| Dessert | 70 | 30 | 82 | 18 | 71 | 29 | 67 | 33 |
| Beverage | 44 | 56 | 57 | 43 | 18 | 82 | 17 | 83 |
| Of Those Who Chose Dinner *B* | | | | | | | | |
| Meat | 57 | 43 | 58 | 42 | 72 | 28 | 75 | 25 |
| Boiled vegetable | 39 | 61 | 38 | 62 | 31 | 69 | 24 | 76 |
| Cereal or potato | 22 | 78 | 19 | 81 | 36 | 64 | 38 | 62 |
| Dessert | 67 | 33 | 66 | 34 | 55 | 45 | 60 | 40 |
| Beverage | 18 | 82 | 15 | 85 | 6 | 94 | 5 | 95 |

TABLE 6

*Percentage of children checking specific foods in Dinner* A *who preferred Dinner* A *or Dinner* B*

| STUDENTS | OF THOSE WHO CHECKED THESE FOODS IN DINNER A | | | | |
|---|---|---|---|---|---|
| | Wieners | Boiled beans | Boiled rice | Canned peaches | Coffee |
| Dinner *A* Was Preferred by | | | | | |
| White boys (%) | 38 | 36 | 43 | 35 | *52* |
| White girls (%) | 41 | 36 | 49 | 36 | *62* |
| Negro boys (%) | 20 | 21 | 21 | 21 | *36* |
| Negro girls (%) | 15 | 18 | 12 | 14 | *36* |
| Dinner *B* Was Preferred by | | | | | |
| White boys (%) | 62 | 64 | 57 | 65 | *48* |
| White girls (%) | 59 | 64 | 51 | 64 | *38* |
| Negro boys (%) | 80 | 79 | 79 | 79 | *64* |
| Negro girls (%) | 85 | 82 | 88 | 86 | *64* |

* A similar tabulation may be obtained from the Department of Home Economics, Mississippi Agricultural Experiment Station, for choice of specified foods in Dinner *B*.

choosing coffee stuck with Dinner *A* (the one which listed coffee) in contrast to an average of only 38 per cent for the other items in Dinner *A* (Table 6). Although a greater proportion, 75 per cent, favored another item on Dinner *A* (canned peaches), only 35 per cent of these "peach lovers" remained loyal to the entire menu when they were forced to choose between the two complete meals.

Getting back to coffee, this same high "pulling power" was evident among the white girls. Of the 27 per cent who said they liked coffee, 62 per cent chose Dinner *A*. We may compare this with the average "loyalty" score for Dinner *A* of 41 per cent who preferred other individual items in that menu.

The "pulling power" of coffee among the Negro children was considerably less, although it was clear that coffee still had the strongest "pulling power" of all the foods on Dinner *A*.

Since these findings were so consistent among all the children, it seems safe to say that there is something about liking coffee which made the individual much more reluctant to switch his vote to another menu than was true when the preference was for some other food on Dinner *A*.

There is, of course, no way to tell from the data available whether this was a result of liking coffee or of disliking buttermilk. The data suggest, however, that one chooses menus for foods one likes rather than to avoid items one dislikes.[4]

## SUMMARY AND CONCLUSIONS

This article is concerned with two types of motivation operating in the selection of menus by 844 white and Negro adults and 680 school children in two rural counties of Mississippi. Where the first motivation was operative, subjects tended to choose one menu because it contained several "liked" foods (an item liked better than or as much as a similar item offered in another menu). Where the second motivation operated, the subjects tended to prefer one menu over another because it contained a "magnetic" item (an item so well liked that one would tend toward choosing an entire meal containing it, even though numerically there were more "liked" foods in another meal).

Information on menu attraction was obtained from the parents of 189 of the 680 children. When

[4] Only 5 per cent of the 844 white and Negro adults indicated that their choice of menu was based on dislike of particular items in the other menu (Table 3).

comparison is limited to those in which preferences were obtained for both parents and children, there was more agreement between the mother and father as to the preferable menu than between the two parents and their children. When parents disagreed, 70 per cent of both the white and Negro children preferred the menu selected by the mother.

This article suggests a technique for studying preferences on menus and menu items. Knowledge of such preferences serves as a basis for menu planning. Need for further work on these techniques is indicated. For instance, in this study, three nutritionally important foods—baked sweet potatoes, boiled turnip greens, and buttermilk—were found to be "liked" items. Would this have been the case if alternative menus had been offered? Were boiled turnip greens popular because they were offered with buttermilk and sweet potatoes? What would have been their popularity if offered with baked Irish potatoes and sweet milk? Are there other magnetic menu items in addition to coffee? Perhaps there are some such items which furnish important nutrients and which might be more often incorporated into family meals. Further work with these techniques might furnish answers to these as well as other related questions.

Knowledge of menu preferences can also serve as a basis for nutrition education programs. The analysis presented suggests more emphasis on demonstrations and on food information programs which show use of foods in combination rather than alone (In general, a menu was preferred because the subject liked several dishes rather than because he liked a "special" dish.)

The findings that parents agree on a menu more than do the parents and their children shows the fallacy of assuming that nutrition education among youth is sufficient. The fact that preferences of the mother and children are more closely related should give added emphasis, however, to nutrition education programs among homemakers.

## BIOGRAPHICAL NOTES ON THE HISTORY OF NUTRITION

### Gaspar Casál—1679–August 10, 1759

Pellagra, which in 1930 accounted for over 7000 deaths in the U.S., is rarely seen today in this country. The first report of pellagra in the U.S. was probably that by H. F. Harris in 1902 in the *Transactions* of the Georgia Medical Association. The disease became more evident around 1909, when Searcy reported an outbreak at the hospital in Mt. Vernon, Alabama, and attributed the disease to the eating of corn. The part corn plays in producing the disease is still not clear, but the lack of niacin—or tryptophan which can be converted to niacin in the human body—has been demonstrated to be the preventive factor.

The first clear description of the disease was given by Casál in his writing in 1735, which was not published, however, until 1762, three years after his death. Casál called this disease "rose sickness" (*mal de la rosa*) because of the characteristic redness of the skin. It was an Italian physician, Francesco Frapolli (1771) who, in a publication giving a careful account of the disease, gave it the present name, "pellagra."

Biographical data on Gaspar Casál are incomplete, confusing, and contradictory. Five different places in Spain and at least one in Italy have been given as his birthplace. The date is believed to have been 1679. Little is known about his education or where he studied medicine. He received an arts degree from the University of Siguenza and settled in Madrid to practice medicine.

He must have been a keen observer and one who relied on his own observations, for his notebooks, which were left to his friend, Dr. Juan Joseph Garcia Sevillano, and later published, showed careful recordings of topography, climate, villages, water, minerals, trees, food, winds, and diseases. He must have been a student of earlier writers, too, because he frequently quoted from Hippocrates.

Also, he must have had charm of personality, for he soon developed a good practice in Madrid and influential persons at court were his patients. He was appointed city physician at Oviedo in Asturias, remaining there thirty-three years. There he found many cases of pellagra. He observed that the disease never affected the rich—only the poor peasants who lived chiefly on maize. Although he ascribed the disease to faulty diet, yet he was puzzled because not all peasants had pellagra; it occurred mostly in four communities and he was unable to find a cure for it. Casál's descriptions of pellagra, or *mal de la rosa*, as he called it, were thorough and complete, with symptoms and typical cases well described.

In 1751, Casál was established at the court in Madrid and was made a member of the Royal Academy of Medicine. He died on August 10, 1759.

Although he was the first to describe the disease, Thiery, a French physician, met Casál at the court in Madrid, and his book published in 1755 quoted much of Casál's work on *mal de la rosa*.

REFERENCES: Major, R.: Don Gaspar Casál, Francois Thiery and pellagra. Bull. Hist. Med. 16: 351, 1944.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*

# Current Comment

## *Needed* by Small Hospitals: The *Shared* Dietitian

THELMA POLLEN

*Public Relations Director,*
*The American Dietetic Association*
*Chicago*

Just as trail blazers make traveling easier for those who follow them, the dietitians who have pioneered in serving a group of small hospitals can offer helpful pointers to those who contemplate becoming a "shared" dietitian.

Although the experienced, shared dietitians were without benefit of the consultation or guidance of predecessors and were obliged to feel their way unaided, they have been markedly generous in assembling guideposts which might be helpful to others. Our mentors are three dietitians located in Michigan, Illinois, and Oregon, who have cleared many of the initial hurdles in this new field of opportunity.

Our three shared dietitians, whose observations and advice are reflected in this article, are keenly interested in their "design for living and working" and feel a pride in having created up-to-date dietary organizations which provide diet therapy service for their patients and which are examples of the use of scientific methods of management. They have a sense of achievement because they have introduced services to patients which had not been possible prior to their employment.

They like the flexibility of schedule which often is not characteristic of large institutions; they enjoy the changes of scene and the variety of personalities they encounter. Furthermore, because public reaction is more readily measurable and is felt earlier in a small community than in a large one, they soon hear favorable comments on the fine quality of the food service.

And, they are not alone in deriving satisfaction from the remarks of the local citizenry. The administrators and the members of the boards of trustees rejoice in them and appreciate the value of food as a public relations tool in drawing patients to the home town hospital.

### FINDING A LOCATION

Even though these venturesome members may provide reliable counsel, each person who decides to engage in this type of dietetic service assumes the role of a pathfinder. She surveys communities where she would like to live and work, influenced by the proximity of several small hospitals which need and wish the services of a part-time dietitian.

In all probability, a person who does not have leisure time for wide-scale scouting will be drawn by personal circumstances or preference to a particular area. Like her predecessors, she may begin by organizing, on a part-time basis, the dietary department of a single institution. Then, through her own initiative or through the requests of administrators of nearby hospitals, she may extend her services to include, gradually, three or four departments.

To restrict her traveling to a minimum, the shared dietitian selects for her headquarters a centrally located community, having arranged to work at a hospital within that "home town." This plan has the advantage of eliminating the need for commuting to one of her places of work.

Experienced shared dietitians advocate a careful study of public transportation systems so that one may be assured a means of travel during winter months when driving may be difficult. Furthermore, they indicate that although driving from 20 to 30 mi. to a neighboring town is not unduly inconvenient in their experience, journeying greater distances would soon prove unsatisfactory. Possibly in sections of the country where the weather is clement and where greater distances are regarded with casualness, one might consider a more extensive traveling schedule.

### NEGOTIATING THE CONTRACT

Before making her decision to sign a contract with a hospital, the dietitian should determine whether the administrator is wholeheartedly in favor of developing a dietary department which will fulfill high standards of service to patients and personnel. She must be assured of his support in carrying out her plans.

She will make it graphically clear to him that her primary objective is to provide adequate nutrition to patients and personnel; to serve modified diets appropriate to the patients' needs; and to serve food which meets high standards of palatability, attractiveness, and variety.

It will be wise to explain that the raising of dietary standards may result, at least temporarily, in higher costs. Perhaps it will be necessary to point out that serving such items as cereals and soups for the evening meal, which is customary in some hospitals, although economical, is definitely undesirable in terms of adequate nutrition and the satisfaction of the patient. Certainly the dietitian will reassure the administrator concerning her practices in sensible purchasing, in reducing waste, and in observing economies in over-all administration.

Before consummating her plans, the dietitian will weigh the possibilities of the success of her program, considering the philosophy of the hospital administrator and of his board of trustees in relation to the dietary department, the caliber and number of employees, the layout of the department, the condition and type of equipment, and her own living and traveling expenses.

Since the dietitian will be the master of her own fate, she will have an understanding with each administrator concerning her salary and future increments. It has been suggested that since she is entirely responsible for the operation of the dietary department, a position which entails the handling of a large share of the hospital's budget, she request from each hospital an amount ranging from one-half to three-quarters of a full-time dieti-

tian's salary in her section of the country.

If all of the important features of the situation indicate ultimate, although perhaps not immediate satisfaction, the dietitian should ask for a contract covering a definite time, since a substantial period is required to introduce and stabilize a program and to train employees properly.

In time, when she is confident that each of her organizations is operating smoothly and efficiently, she might wish to extend her services to include a third or fourth hospital. In such an eventuality, she would plan, in consultation with her original administrators, revisions in her contracts, accepting a reduction in salary commensurate with the amount of time she planned to spend at each hospital.

### INDOCTRINATION WITHIN THE HOSPITAL

Inasmuch as a dietitian is also a teacher, she appreciates the value of thorough indoctrination. She realizes that since a new type of professional person is being introduced to the hospital staff—a person who will offer services previously assumed, in part at least, by the medical and nursing departments—adequate introduction and explanation are required. Undoubtedly the administrator will react favorably to her request for his cooperation in preparing the way for understanding in the hospital family. It is suggested that he invite the dietitian to attend a medical staff meeting so that she may have an opportunity to discuss her services to patients and to explain the modified diets which will be available.

Incomprehensible though it may seem, there are doctors who, even today, are unfamiliar with the dietitian's knowledge of diet as it is related to disease and are uninformed concerning her ability to plan modified diets which are applicable to the patients' needs. Representing some of this group—fortunately, a minority—are doctors who, even after orientation, resist utilizing the dietitian's professional skills. Such a situation would challenge the philosophy and the understanding of the dietitian, but she can reassure herself with the knowledge that others have seen diminishing rigidity through the use of diplomacy and patience.

Happily for her, the majority of physicians and surgeons are glad to be relieved of the time-consuming burden of calculating diets and of writing detailed instructions.

Another aspect of this plan of indoctrination reaches other departments, calling for discussions and decisions concerning procedures. From her past experience, the dietitian knows that once she has accepted responsibilities, a later attempt to reallocate them is difficult if not impossible. The very beginning is the time to study not only her major obligations—both those which must claim her attention at first and those which will represent the ultimate and ideal pattern of work—but also the seemingly minor clerical routines which affect her department. Without clerical assistance, it is essential that she plan with the administrator, the director of nursing, and the bookkeeper the handling of as many clerical routines as can be appropriately assumed by other departments.

For instance, the bookkeeper, rather than the dietitian, can check prices of food deliveries. Another example is the filling in by the nursing department of printed forms pertaining to the arrival of patients, including among other items of information, the doctor's dietary prescription. Such a form, with necessary carbon copies, eliminates the preparation of a patient census in the dietary department. One copy can be sent to the dietary department where it will be used as the dietary order; if the prescription is changed during the patient's stay, a new copy can replace the original. This same form, with proper information added, can also be used to notify the department of the patient's dismissal.

A wide use of forms is advocated. Many of them can be reproduced inexpensively by means of the Ditto or Mimeograph process. Their use as order forms of several types, work schedules, menu sheets, and so on, is essential in reducing as much as possible the clerical work which falls upon the dietitian.

The greatest need for indoctrination and education undoubtedly lies in the dietary department itself, particularly if the newcomer has not been preceded by a trained supervisor. Her task is one of reorganization and remodeling. In all likelihood, the remodeling applies more to attitudes and work performance than to physical layout, which, even though highly desirable, may not be possible financially.

Obviously, her task would be far less complicated if she were to share in the planning and development of a department in a new hospital, having a voice in the architectural layout, employing and giving initial training to personnel, and developing an original set of personnel policies.

### THE SHARED DIETITIAN'S RESPONSIBILITIES

Before she can focus her attention on the training of her employees, the shared dietitian is faced with her most exacting task, that of outlining her own plan of action. She will indicate in detail her immediate program and the one toward which she will gradually progress, in which she will devote most of her time to the duties which she alone, as a professional person, will perform. Her most difficult problem is remembering that she is a shared dietitian, that she cannot compress into two or three days all that she would like to do.

All three of the dietitians whose impressions are reflected in this article reserve for their efforts the making of policies for the department, the responsibility for interdepartmental relationships, menu planning of general and modified diets, and employee training. Two of them feel strongly that they, and they alone, should visit and teach patients, giving discharge instructions. They also believe that they should hire and release employees, while the third prefers to leave this responsibility with the administrators of her three hospitals.

All three formulate purchasing plans, but delegate to experienced employees the routine, minor purchases, based on prepared order forms.

Quite dissimilar to the programs in Michigan and Oregon, which are fundamentally alike, is the pattern originated by the dietitian in

southern Illinois. Here a nonprofessional food service supervisor is employed in each of the three hospitals. After several months of intensive training by the shared dietitian, the supervisor sees to the routine operation of the department, maintaining high standards and making sure that the policies are observed. She reports to the dietitian.

The supervisor's training includes not only administration but also a study of diet in health and disease, with special emphasis on the modified diets most frequently required. Assignments for home study have been made, followed by discussion periods.

The food service supervisor has accompanied the dietitian on her visits to patients, learning how to make such calls and to discuss routine dietary matters. The more complex problems involving patients' diets are referred to the dietitian. The same division of attention relates to educational preparation of the patient for discharge.

### QUALIFICATIONS OF THE SHARED DIETITIAN

Responding to a query concerning the qualifications of a shared dietitian, our three advisors, who had considerable experience before embarking into this field of service, state that a person should have spent at least five years in other hospital situations. They feel that she should be particularly strong in food administration, but be well grounded in diet therapy. Perhaps they would agree that the specific period of experience might be lessened somewhat by an exceptionally fine record of performance and by highly desirable qualities of leadership, temperament, adaptability, maturity of judgment, and personality.

There are more than three thousand small hospitals located across the country, in all of which improved service to patients could be realized by utilizing a service such as that offered by the shared dietitian. On the other side of the coin, regardless of whether a dietitian's present situation is in a middle-sized or large institution or in the home, she will find, on venturing into the pioneering role of shared dietitian, that she can count on the keen sense of gratification and reward that comes to those who have built something from what is best in them.

✠ ✠ ✠ ✠ ✠ ✠ ✠ ✠

## Dietary Consultation for Smaller Hospitals in Georgia[1]

MARGARET DYKES

*Dietary Consultant, Division of Hospital Services, Georgia Department of Public Health, Atlanta*

Being a dietary consultant is the most interesting work I have ever done. The dietary consultant must be an odd mixture of dietitian, architect, diplomat, engineer, accountant, food service director, cook, and kitchen helper. She must realize that Rome wasn't built in a day and that, of necessity, her program is a long-term one. Results are seldom apparent at once.

In Georgia, almost 80 per cent of the approximately 250 hospitals have a capacity of less than 50 beds. Only a limited number of qualified dietitians are available, and unfortunately, the salaries are usually too low to attract them to these small institutions. Because of this situation, the Division of Hospital Services of the Georgia Department of Public Health employs a dietary consultant primarily for the purpose of working with these small hospitals which do not have qualified dietitians. The dietary consultant is a member of The American Dietetic Association, and her job description specifies that she must have had experience as an administrative dietitian and, in addition, experience in teaching nutrition and diet therapy.

Among her duties is assistance in planning the dietary departments of new hospitals. The Division of Hospital Services is the agency which handles the Hill-Burton funds for construction of new hospitals. When an application for such financial assistance is made, the Division, in collaboration with local authorities, makes a survey of the community to determine whether it needs and can support a hospital. After the application for funds is approved, the community employs an architect who first makes a schematic drawing of the proposed building. This drawing is submitted to the Division of Hospital Services for checking, including an appraisal of the dietary department plan by the dietary consultant.

Following this evaluation, blueprints and equipment specifications are reviewed and suggestions for changes and improvements are made before bids for construction are awarded.

A few months prior to the opening of the hospital, a meeting is arranged between the hospital's board of trustees, the administrator, and representatives of the Division of Hospital Services, including the various specialists and consultants. The operation of the hospital is discussed, including particularly those aspects which need to be considered before the opening date. The dietary consultant briefly discusses the operation of the dietary department at this meeting.

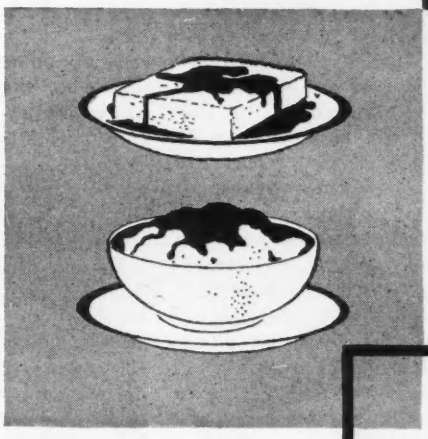
Just before the opening, after the equipment has been installed and the food service supervisor is on duty, the dietary consultant visits the hospital. If such a visit cannot be scheduled prior to the opening, it is made as soon as possible thereafter. During this visit, an effort is made to help the food service supervisor in the various areas of dietary operation, with special attention being given to problems or questions which have already arisen. A return visit is made a few months later, usually at the request of the administrator.

### ASSISTANCE TO EXISTING HOSPITALS

Assistance in dietary operation is also given to existing hospitals. The areas in which help is most frequently requested are: financial control, including food cost and personnel requirements; menu planning and food purchasing; modified diets; recipes and portion control; selection and rearrangement of equipment following remodeling;

[1] Presented before the Florida Dietetic Association in Tallahassee, on October 30, 1953.

# how Pet evaporated milk makes smooth, rich Chocolate Sauce at lower cost



## CHOCOLATE SAUCE (for 50)

| INGREDIENTS | AMOUNTS OR WEIGHTS | DIRECTIONS |
|---|---|---|
| Chocolate, unsweetened | 9 squares (9 ozs.) | Melt chocolate over hot water. Stir in water slowly, then add sugar, salt and corn syrup. Boil over direct heat to 234°F., or until a few drops form a soft ball when dropped into cold water. Remove from heat. Stir in milk and vanilla. Serve warm or cold on plain cake, ice cream or other desserts. Makes about 50 servings of 1 ounce each. |
| Water | ¾ cup | |
| Sugar | 3 cups (1½ lbs.) | |
| Salt | ¼ teaspoon | |
| White corn syrup | 9 tablespoons (6 ozs.) | |
| Pet Milk | 2 tall cans | *To Substitute Cocoa for Unsweetened Chocolate,* mix 1½ cups cocoa with the sugar. Stir in water, then corn syrup and proceed as directed above. |
| Vanilla (optional) | 1 tablespoon | |

Dark, rich, creamy-smooth, chocolate sauce adds a special goodness to ice cream, puddings, cakes. But Chocolate Sauce made the Pet Milk way does even more. It adds extra milk nourishment and delicious flavor at surprisingly low cost.

Because Pet Evaporated Milk is whole milk concentrated to double richness, it's the perfect ingredient for making Chocolate Sauce... sauce with rich flavor, creamy-smooth consistency. It takes the place of both cream and butter and adds the important nourishment of whole milk. In fact, the equivalent of 6⅔ cups of rich whole milk is hidden away in this recipe.

The cost? Much less than Chocolate Sauce made the ordinary way. Pet Evaporated Milk costs less than half as much as cream, less generally than any other form of whole milk.

HOME ECONOMICS DEPARTMENT • PET MILK COMPANY • ST. LOUIS 1, MO.

and surveys of the entire operation.

The procedure followed in scheduling consultations is handled in several ways. A request for assistance is usually made by the hospital administrator, either by letter or telephone. Or, frequently it is made through other members of the Division's staff who visit hospitals. At the time of the request, the consultant asks the administrator to inform the food service supervisor that she is coming. She also inquires as to the nature of the help needed so that she may select material to take with her which will be pertinent. All requests are also checked with the Division's director and with other staff members to learn any general information which the consultant should have before making the visit.

On arrival at the hospital, the consultant first meets or speaks with the administrator. In discussing with him the known problems, she tries to make him feel that she is there to be helpful, not critical. After this interview, the administrator introduces her to the food service supervisor. Since the supervisor may be apprehensive about the visit, it is most important that friendly rapport be established before any discussion of the operation of the department is begun. Even though this may mean talking about topics which are irrelevant to the problems, it is imperative that the consultant attempt to dispel any fear of criticism or feeling of insecurity which her presence may arouse. At no other time in her work is it so important for her to say the appropriate thing. When the food service supervisor realizes that the consultant wants to be helpful and accepts her, then they can profitably discuss problems on a give-and-take basis.

It seems advisable to proceed in a leisurely manner, although at the same time asking pertinent questions and making tactful comments on the problems which have already been mentioned by the administrator. If friction between or among the staff members is evident, it is important, of course, to consider all questions objectively, even though this may sometimes be rather difficult.

An effort is also made, whenever possible, to speak briefly to the employees, although it would be unwise to discuss the details of problems with them, since that would be tantamount to usurping the food service supervisor's prerogatives. If they ask questions on methods or the supervisor requests that the consultant work with them, help should then be given. If, however, the employees criticize the supervisor or other staff members, it is certainly wise not to discuss their employers with them.

After observation and discussion, the consultant explains to the food service supervisor about the suggestions which will probably be included in the written report of her visit. In this way, the supervisor will know more definitely how to interpret and implement the suggestions and recommendations.

If possible, before leaving the hospital, it is desirable to talk again with the administrator to explain that a written report will be made. This also provides an opportunity to discuss the suggestions with him and to offer to return if more help should be wanted. At this time, the dietary consultant can also suggest that questions can be referred to her by letter or telephone when problems arise.

After the consultant returns to the Division's headquarters, she prepares a written report which is sent to the administrator.

### OTHER DUTIES OF THE CONSULTANT

Attendance at state and national meetings and participation in the activities of professional organizations are other facets of the dietary consultant's program, as is the necessary administrative work in the Division office.

Recently the dietary consultant has worked with a committee of qualified dietitians on the development of a diet manual for the small hospitals which she visits. This manual has been published and distributed to hospitals and nursing homes in the state.

The planning and development of training programs for food service supervisors are also part of the work of this consultant. For the past two summers, the School of Home Economics of the University of Georgia and the Division of Hospital Services have jointly sponsored one-week dietetic workshops for food service supervisors in the small hospitals. Currently, plans are being made to hold two-day institutes for food service supervisors in each of the five hospital council areas in the state.

### THE CONSULTANT'S QUALIFICATIONS

In my opinion, a dietary consultant who works with small hospitals should, first of all, like and enjoy working with people. She should be a person whose professional ethics are so well developed that the non-professional food service supervisor will not hold her at arms' length because of her so-called superior knowledge but will feel that she is both human and approachable. Diplomacy on the consultant's part is imperative if her "know-how" in dietetics is to be of any value to others. Tact is not just a four-letter word, but a characteristic which she must possess to accomplish desired results. She should use discretion when personal differences exist in a hospital. Good judgment and the ability to make wise decisions on the basis of the available facts enable her to render more valuable service. But it is always better to say, "I don't know, but I will get the information for you," than to give an erroneous answer. The dietary consultant for the smaller hospital should also possess physical stamina, because her work is strenuous.

«««« »»»»

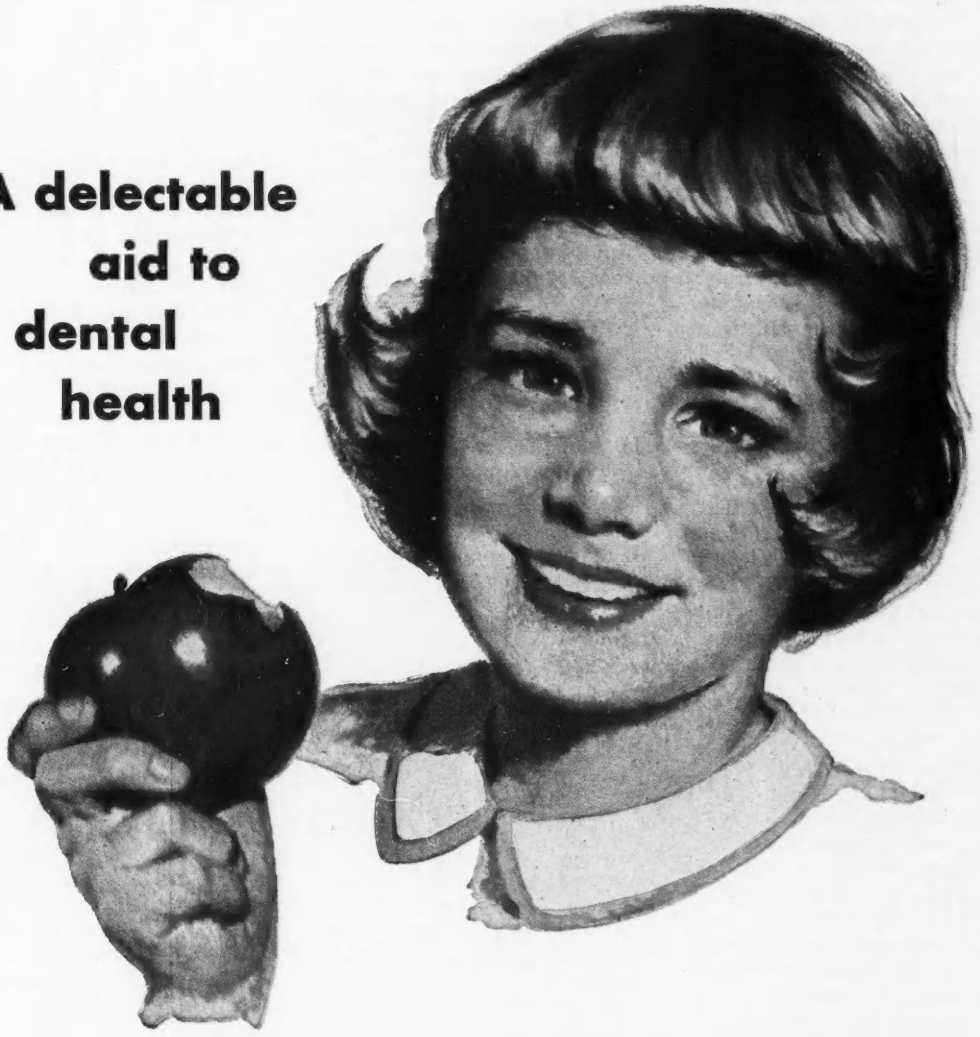
## Measuring the Effectiveness of Food Service Institutes

ALICE H. SMITH and
MYRTLE B. VAN HORNE

*Nutrition Section, Michigan Department of Health, Lansing*

Michigan, like many states, has more hospitals without dietitians than those with them, and almost all of the six hundred "homes for the aged" are without dietitians. One consultant dietitian and four public health nutritionists in the Michigan Department of Health render valuable service throughout the state but necessarily on a limited basis. A monthly news release brings timely and helpful information to those who subscribe. Matching needs with resources points out the fact that careful

# A delectable aid to dental health



Today's diet, often soft and containing relatively large amounts of carbohydrates, poses a constant threat to teeth and gingivae. A fresh juicy apple after meals is a tasty aid to conservation of dental health. The apple is a succulent cleanser, highly efficacious, convenient and enjoyable. Its firm chewable texture gives needed massage to flabby gums. Its delicate aroma and lively flavor stimulate the salivary glands to copious secretion. These benefits are provided through regular everyday eating of apples.

**NEW** *film "Gateway to Health" in 16 mm. color and sound. Case histories from practice of Fred D. Miller, D.D.S., Altoona, Pa., demonstrate influence of dietary habits on dental health. Especially suitable for professionally sponsored public education programs. Write to address below.*

NATIONAL APPLE INSTITUTE, 726 JACKSON PLACE, N. W., WASHINGTON 6, D. C.

*In Behalf of* THE APPLE GROWERS OF AMERICA

planning must be done to make services available to the staffs of the food service departments of the nearly one thousand hospitals, homes, and other institutions desiring such service.

The food service institute appeared to be one means of meeting, partially at least, the need. Consequently, in 1950 a State Advisory Committee was formed. This Committee had representation from: the Michigan Hospital Association; its district Councils; the Michigan Dietetic Association; the Hospital Division of the Kellogg Foundation; and the Hospital Consultation Unit, Environmental Sanitation Section, and the Nutrition Section of the Michigan Department of Health. This committee recommended that the consultant dietitian of the Michigan Department of Health serve as liaison person between the committee and the district hospital Councils and other organized groups concerned with this type of service. As a result of this planning, six regional institutes were held throughout the state in 1951 and 1952; and one two-day meeting in one area was held in 1953.

In planning the institutes, local program-planning committees were appointed by the district hospital Council, and the consultant dietitian worked closely with these committees. To learn the needs, the institutions in each area were polled for suggestions. As finally evolved, at each institute there were formal presentations of factual material and small discussion groups with resource persons available.

The 1951 programs were like the well-advertised paint; they "covered the earth" of institution food service. In 1952 and 1953, the areas of interest were more limited. During the three years' programs, the following topics have been covered: personal hygiene and sanitation, menu planning, meat carving, special diets as a modification of the normal diet, the use of nonfat dry milk solids, care of equipment, and kitchen safety. Numerous other subjects, such as employee training, kitchen layout, work flow, and work schedules, were included in the small group discussions. Demonstrations and visual aids, including movies, film strips, and exhibits, have been used. The "Meal Planning Exchange Lists" for use with diabetic diets, the U. S. Department of Agriculture Handbook No. 16, *Planning Food for Institutions* (1), and the American Hospital Association's *Master Menu Diet Manual* (2) were used and made available. Dietitians and local health department personnel served as resource persons.

During the three-year period the institutes were attended by approximately nine hundred persons:

240 hospital administrative personnel
293 hospital food preparation employees
114 hospital food service employees
100 food service employees from homes for the aged
19 food service employees from children's institutions
131 staff and resource persons

Of the 186 hospitals represented, they were classified by bed capacity as follows:

35%—under 50 beds
26%—50 to 99 beds
16%—100 to 199 beds
19%—over 200 beds (largely state hospitals)

These 186 hospitals served a total of 107,144 meals a day. There were workers from 81 homes for the aged, serving 13,008 meals a day. The workers from children's institutions attended only the 1951 institutes. Michigan cares for most of its homeless children in private foster homes.

During the first two years, participants were asked to "evaluate" the meetings and make suggestions for content of future institutes. The limitations of such an evaluation are well known. There is no established measure for evaluating such an institute. The improvement of the food service is the objective. But how such improvement can be measured is a moot question; yet the answer is needed to warrant the expenditure of time and money of the hospital and its employees as well as that of the staff and their agencies.

The program planning committee for the 1953 institute, with suggestions from the State Advisory Committee, attempted to obtain the answer to some of these questions by submitting questionnaires to each participant and to each administrator whose institution was represented at the 1953 institute.

### ADMINISTRATORS' EVALUATION

Although administrators delegate responsibility for the functioning of the food service department to a dietitian, food service manager, or cook, the administrator is, in the long run, responsible for the control, cost, efficiency, and quality of food service. In view of this, the administrator's questionnaire was designed with the thought that it might help him to be more aware of and constructively critical of the food service.

The questionnaire was organized to include six broad areas (see box): menu planning, purchasing and cost control, preparation and service, sanitation, safety, and relationships. The administrator was asked to: (a) rate the present practices in these areas, (b) indicate which ones had been improved as a result of employee attendance at the 1953 institute, and (c) indicate which areas should be considered in future plans for institutes or other type of food service training.

Forty-six institutions were represented at the 1953 institute; and 33 per cent of the administrators returned their questionnaires but not all were completed for every detail. In rating the food service, the administrator was asked to use the words "excellent," "good," and "fair." Because of the incompleteness of the returns, complete summarization was difficult, but the following statements are justified:

One-half of the administrators rated *Menu Planning* as "good."
The ratings for *Purchasing and Cost Control* were evenly divided between "excellent," "good," and "fair."
More than half of the ratings for *Preparation and Service* were "good." This item had more "fair" than "excellent" ratings.
A few administrators rated *Sanitation* as "excellent" and two-thirds rated it as "good."
Two-thirds of the ratings for *Safety* were "good."
The ratings for *Relationships* were equally divided between "good" and "fair."

The items which showed improvement following attendance at the Institute were of special interest. Granted that this is a difficult thing to measure, there was definite evidence of changes as follows:

All items of *Menu Planning* were checked and, in particular, improvement was noted in the areas of "ad-

# Food buying simplified!

Smart dietitians don't guess! They plan their meals around Armour products because they know they can depend on Armour quality. They know that regardless of what they need – from meats to shortening – a single call to Armour will bring specialized service and prompt delivery on this wide variety of products. Next time *you* order, see how your Armour salesman can help you!

Fresh Meats · Smoked Meats · Canned Meats · Sausage Products

Poultry · Dairy Products · Fresh Frosted Meats · Shortenings

You know it's good!

ARMOUR STAR

The Armour Star label is one of the world's great guarantees!

## ARMOUR AND COMPANY

Hotel and Institutions Dept. • General Offices • Chicago 9, Ill.

Institute for Food Service Personnel

*Administrators' Evaluation Schedule*

| Area of Service | Present rating* | Improvement resulting from Institute** | Future needs** |
|---|---|---|---|
| 1. Menu Planning. Consider the following: | | | |
| Advanced planning | | | |
| Color | | | |
| Texture | | | |
| Nutritive value | | | |
| Day-to-day variety | | | |
| Management of modified or "special" diets | | | |
| 2. Purchasing and Cost Control. Consider the following: | | | |
| Wholesale purchase of staples | | | |
| Grade determined by use | | | |
| Use of nonfat dry milk solids | | | |
| Control of waste | | | |
| Preparation | | | |
| Plate | | | |
| 3. Preparation and Service. Consider the following: | | | |
| Use of standardized quantity recipes | | | |
| Maximum use of labor-saving devices | | | |
| Meat cooking—temperature control to prevent shrinkage | | | |
| Preparation time in relation to service time | | | |
| Appearance of trays | | | |
| Staff and employee food service | | | |
| Attractiveness | | | |
| Consumer satisfaction | | | |
| 4. Sanitation. Consider the following: | | | |
| Standards of personal hygiene | | | |
| Care of and cleaning of equipment | | | |
| Stoves | | | |
| Refrigerators | | | |
| Dishwashers | | | |
| Peelers | | | |
| Temperature control of | | | |
| Refrigerator | | | |
| Freezer | | | |
| Water for dishwashing | | | |
| Care of cutlery | | | |
| Lighting | | | |
| Ventilation | | | |
| Garbage disposal | | | |
| 5. Safety. Consider the following: | | | |
| Layout in relation to work flow | | | |
| Employee instruction in use of equipment | | | |
| Floor care | | | |
| Knife storage | | | |
| Fire extinguishers | | | |
| Accident rate | | | |
| Minor | | | |
| Major | | | |
| 6. Relationships. Consider the following: | | | |
| Community service reputation | | | |
| Worker-patient | | | |
| Worker-staff | | | |
| Worker-other department workers | | | |
| Dietary department morale | | | |

7. In your hospital, would more emphasis on dietetic consultation, follow-up type of service improve the effectiveness of the Institute? Please check:

Much _____ Some _____ Little _____

*Please rate as: Excellent, Good, or Fair.

**Please use a check mark.

Signed (optional)_____

Institution_____

Date_____

vanced planning," "nutritive value," and "color."

A majority checked increased "use of nonfat dry milk solids" as a means of reducing costs.

In most cases, improvement was noted in the "appearance of trays" and the "attractiveness of staff and employee food."

An improvement was noted in "standards of personal hygiene" and in "dishwashing."

One-third or more administrators checked each item under *Safety*.

About one-half noted an improvement in *Relationships*.

### SUGGESTIONS FOR FUTURE TRAINING

The State Advisory Committee was particularly interested in results of this survey and will consider its findings in planning future

# Heinz New Crop Of Tomatoes Is On Its Way!

You Know It's Good Because It's HEINZ!

**Institute for Food Service Personnel**
*Participants' Evaluation Schedule*

1. How did the Institute measure up? Please check.
   _____ Fair _____ Good _____ Excellent
2. Was the demonstration on the use of dry milk solids helpful?
   _____ Yes _____ No
   Have you used dry milk solids in your food service?
   _____ Yes _____ No
   If not, why not? Comment:_____
   Have you used them for the first time?
   _____ Yes _____ No
   In what foods have you used dry milk solids? List:_____
   _____
   In what way have you found them helpful? Comment:_____
   _____
3. Is your kitchen a safer place in which to work?
   _____ Yes _____ No
   What practices have you improved for the sake of safety? List:_____
   _____
4. What kind of accidents have you reported recently? List:_____
   _____
5. Have you made any changes in placement of equipment or layout for the purpose of eliminating accidents and improving the safety of workers? List:_____
   _____
   List other measures you have taken to make your work safer: _____
   _____
6. Did you find the discussion period helpful?
   _____ Yes _____ No
   What would have made this period more helpful? Comment: _____
   _____
   _____
   Was it long enough? _____ Yes _____ No Too long? _____ Yes _____ No
   Do you think a discussion period such as this is an important part of an institute?
   _____ Yes _____ No
7. How could the Institute have been made more valuable to you? Comment: _____
   _____
   _____
8. What information would be helpful to you if presented at another institute? Comment: _____
   _____
   _____
9. Did you have an opportunity to discuss the Institute with other hospital personnel?
   _____ Yes _____ No
   If so, check which:
   _____ Nursing _____ Dietary _____ Administrator
10. Do you receive "Food Notes for Institutional Food Service"?
    _____ Yes _____ No

Signed (optional)_____
Institution_____
Date_____

training programs. The returns showed greatest interest in meat cookery. Other topics checked were: modified diets, use of standardized quantity recipes, standards of personal hygiene, temperature control for refrigeration, frozen storage, and dishwashing. A few of these topics were included in the programs for the 1951 and 1952 institutes but not in 1953.

All but one reply indicated that the services of a dietary consultant, following an institute, would undoubtedly increase the effectiveness of the institute.

### PARTICIPANTS' EVALUATION

A questionnaire, based on the mechanics of the meeting and the program content, was also sent to the participants of the 1953 institute (see box at left).

Eighty-two questionnaires were sent out, and 50 per cent were returned, although not all were completed in every detail. Of those who responded,

> All but one found the demonstration of the use of nonfat dry milk solids helpful, even though a majority had used the product previously.
> All but one (a new hospital) stated that the kitchen is now a safer place in which to work. Twenty-eight returns listed sixteen improved safety practices; nine listed ways in which the layout has been changed in the interest of safety.
> With only one exception, the discussion groups were checked as being helpful.
> One-fifth of the returns indicated a sharing of knowledge gained at the Institute with the administrators, while one-half shared with members of the dietary department staff. Although gratifying, this important measure of success of this type of program still leaves room for improvement.

Unfortunately, we failed to ask whether the educational materials distributed at the meeting had proved helpful.

### SUGGESTIONS OF PARTICIPANTS FOR FUTURE PROGRAMS

The participants' wishes regarding future institutes agreed in general with those of the administrators. Training in special diets headed this list, with food preparation including demonstrations, standardized recipes, and salad-making of next importance. All told, twenty items for future programs were listed.

# In special diets— recipes make the difference

**Dull appetites perk up**

...your recommendations are more enthusiastically followed — if your special-diet patients have menus that are as appetite-stimulating as they are wholesome. The use of Gerber's Strained or Junior (Chopped) Foods, as indicated—plus the help of "Recipes for Special Diets"... makes the combination feasible for Bland, Soft, Mechanically Soft, Liquid, and Low-Residue Diets.

The tempting true color and true flavor of Gerber's great variety, along with high nutritive values, fine texture, and bland seasoning—all combine for diets equally satisfactory to you and your patients.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

**DINNER MENU**

(based on recipes from Gerber's "Special Diet" booklet)

Cream of Vegetable Soup.....(pg. 16)
Mock Chicken Legs.....(pg. 24)
Squash Custard*.....(pg. 20)
Fruited Rice Pudding.....(pg. 33)

*** SQUASH CUSTARD**

2 containers Gerber's Strained Squash
¼ cup orange juice — 3 Tbs. sugar
1 egg — Salt

Combine ingredients. Bake in oiled baking dish or 3 custard cups for 35 mins. in moderate oven (350°).

**Gerber's**

4 CEREALS • 60 STRAINED AND JUNIOR MEATS, VEGETABLES, FRUITS, DESSERTS

**FREE COPIES** of Gerber's "Recipes for Special Diets!" Write on your letterhead to Dept. 239-4, Fremont, Michigan.

In summarizing, it seems safe to say that some administrators felt that observable or measurable results accrue as a result of employee attendance at an institute for food service personnel. The participants, too, felt the experience to be valuable. Both administrators and participants agreed that there was room for more improvement in their food service departments. Focusing attention on problems requiring improvement is in itself a valuable result. Priorities for future training programs were in general agreement.

Because the numbers involved in this project were small, no far-reaching or definite conclusions and recommendations can be made. With minor changes, the technique used in 1953 will be used after the 1954 institutes and re-evaluated. It is hoped that other groups sponsoring food service institutes also will attempt to measure the results.

REFERENCES

(1) LIFQUIST, R. C., AND TATE, E. B.: Planning Food for Institutions. U. S. D. A. Agriculture Handbook No. 16, January 1951.
(2) Master Menu Diet Manual. Chicago: American Hospital Assn., 1951.

### *The House of Delegates*

What will happen when you are selected to be a delegate from your state dietetic association to the House of Delegates of The American Dietetic Association? Probably your first reaction will be one of pleasure, for it *is* an honor, and if you have already participated in activities of The American Dietetic Association, you doubtless are well oriented to the House of Delegates. Should the delegate assignment be your initial experience, however, you may be perplexed about the "how," "what," and "why" of the House of Delegates.

To aid those chosen as our representatives in the House of Delegates, the New York State Dietetic Association has included a resumé of the history of the House and its Council in the state's "Leaders' Handbook." The preparation of this resumé required delving into the *Proceedings* of annual meetings in the past, reports by the national officers to the membership, former constitutions of the national association, and articles in the JOURNAL. As the facts unfolded, we found that there has been a pattern of consistent growth and development over the years. Unfortunately, it was necessary to delete many details; it is hoped, however, that enough facts have been retained to give, in logical sequence, helpful information to our delegates. This summary follows:

> As far back as 1928, the leaders of The American Dietetic Association foresaw the need for a House of Delegates which would implement the professional activities of the Association. The organization of a House of Delegates was recommended in 1936 and the first meeting was held in 1937 in Richmond, Virginia. In 1938, the two-year term for the delegate was established, to provide more continuity of state representation.
>
> In 1939, a procedure which provided for the selection of a Chairman of the House of Delegates designated the Vice-President of The American Dietetic Association to this office. In 1944, the Constitution and By-Laws adopted at the annual meeting stipulated that: the President of A. D. A. should be the Chairman of the House of Delegates and preside at its meetings and that the Secretary of A. D. A. would be Secretary also of the House of Delegates. The Vice-President would officiate in the House in the event of the absence or disability of the President.
>
> In 1946, the Executive Board of A. D. A. recommended the organization of a Council of the House of Delegates, and in October of the following year, a Council of seven members was elected from and by the House.[1] A Chairman was elected by these seven members and she became an ex-officio member of the A. D. A. Executive Board by invitation of the President.[2] From 1947–49, the Council functioned without constitutional backing,[3] but at the annual meeting in 1949, a new Constitution was adopted which brought about considerable reorganization in the Association.
>
> The Council of the House of Delegates was enacted to consist of seven members: the Speaker, the two senior Delegates-at-Large, and four Delegates, two of whom are elected each year for a term of two years by the House membership.[4] The Council elects from its seven members a Secretary who serves both as Secretary of the Council and of the House.
>
> In the House of Delegates, a new office was established, that of Speaker. This officer serves both as Chairman of the House and of the Council. The Speaker is nominated from the A. D. A. membership by the nominating committee of the House of Delegates, but is elected by the entire Association membership. As Speaker, she is a member of the A. D. A. Executive Board and presides in the President's absence.

For those who may be interested in the full story of the development of the House of Delegates, the following references contain a wealth of information:

WALSH, H. E.: The American Dietetic Association serves its members. J. Am. Dietet. A. 25: 490, 1949.
The proposed constitution. Editorial. J. Am. Dietet. A. 25: 777, 1949.
WALSH, H. E.: Report of the Executive Board: 1948–49. J. Am. Dietet. A. 25: 1005, 1949.
PERRY, E.: Report of the Executive Board: 1949–50. J. Am. Dietet. A. 26: 949, 1950.
OHLSON, M. A.: Report of the President to the members of The American Dietetic Association. J. Am. Dietet. A. 28: 1125, 1952.
HUNZICKER, B. A.: Who governs The A. D, A.? Editorial. J. Am. Dietet. A. 29: 578, 1953.

—*Ellen B. Guernsey, Senior Nutritionist, New York State Department of Health, Albany.*

[1] Annual Reports & Proceedings, 1947–48, p. 6.
[2] Annual Reports & Proceedings, 1946–47, p. 4.
[3] Annual Reports & Proceedings, 1948–49, p. 4.
[4] By-Laws of the House of Delegates, Revised 1952, p. 2.

# SAVED:

## 53½% IN REPLACEMENT COSTS IN 5 YEARS!

*The distinguished service record of Break-Resistant Melmac® Dinnerware at* **Clifton's** Los Angeles

Everyone in Los Angeles knows Clifton's, and Clifton's knows every fine service feature of dinnerware made of Melmac molding material. No wonder—after five years of cost-cutting experience with it!

Here's how Clifton's sees it—

*"... there is no doubt that plastic dishes are saving us thousands of dollars each year through their durability"*

and

*"... our ware handlers are especially pleased with the light weight of Melmac; so is the patron, whose fully laden tray is much lighter than it would be if we used conventional dinnerware."*

But—does Melmac withstand automatic dishwashing? Well, here's what it gets at Clifton's—has been getting for five years—

*"... a 140° F pre-wash ..160° wash ... first rinse 180° F and final rinse at 200° F, which also heats the dish to speed drying."*

That says it—Melmac's a mighty money-saver that will pamper the patrons, the help, and your purse! Ask your supplier to demonstrate Melmac's marvelous break-resistance, and you'll see what we mean.

AMERICAN Cyanamid COMPANY

PLASTICS AND RESINS DIVISION
30-57 Rockefeller Plaza, New York 20, N. Y.

In Canada: North American Cyanamid Limited
Toronto & Montreal

*Melmac is a registered trade-mark of American Cyanamid Company for Melmac Molding Compounds used in the manufacture of dinnerware and other modern products.*

# Student Opinion . . .

*Contributed by graduate students in nutrition working at the University of Massachusetts, Amherst, under the direction of Dr. Helen H. Mitchell*

## Genetotrophic Concept in Nutrition

*Elizabeth M. Elbert*

Heredity probably plays a greater role in nutritional requirements than heretofore suspected. The occurrence of "partial genetic blocks" (1), which are results of common individual inheritance, alters the metabolic pattern of the body. No doubt, these impediments increase requirements for those nutrients that are precursors to essential metabolites. Thus, decided differences in requirements among individuals may be brought about by heredity; this is the "genetotrophic concept" (2) of nutrition.

The mutation of a gene, associated with an enzyme necessary for a particular metabolic reaction, can effect a genetic block (1); the enzyme, in such a case, is probably deficient and thus cannot promote the biologic reaction needed for the production of essential metabolites. However, the ability of the metabolic system to carry out a specific enzymatic transformation does not fail completely as a result of a genetic block. If the individual augments the supply of particular materials that are needed, nutritional or genetotrophic deficiency will be prevented. In some instances the end product of the blocked reaction may be supplied; the administration of hormones is such an example. However, this is not always practical or feasible owing to the complexity of metabolic processes; if the body can be made to do the work when given "extra" amounts of nutrients, this seems to be more advisable. Thus, a sufficient concentration of the essential nutrients forces the partially blocked reaction to proceed, and in this way adequate amounts of metabolites for normal metabolism are produced.

The genetotrophic concept probably explains the different thiamine levels required by three strains of white rats studied by Light and Cracas (3). One strain required twice as much thiamine (8 mcg. per day) as another to produce similar weight gains. Lamoreux and Hutt (4) developed strains of White Leghorn chicks that were relatively resistant to riboflavin deficiency, while other strains were developed that were fairly susceptible to deficiency.

The thiamine requirement for humans has been found to vary at least threefold (5). In a group of fifteen people, three appeared to require as little as 0.5 mg.; eight, about 0.8 mg.; two, about 1.1 mg.; one, about 1.3 mg.; and one, 1.5 mg. per day. In a larger group, the range would be even greater.

Evidence that functional deficiency of vitamin $B_{12}$ in children is benefited by oral administration of the crystalline compound has been presented by Wetzel and associates (6). Five of eleven children responded favorably as indicated by improved growth. Prior to the experiment, three of the children showed much slower growth progress than the others. The body tissues may well have been depleted of vitamin $B_{12}$; in addition, the possibility exists that these children required greater than "average" amounts of the vitamin for normal growth.

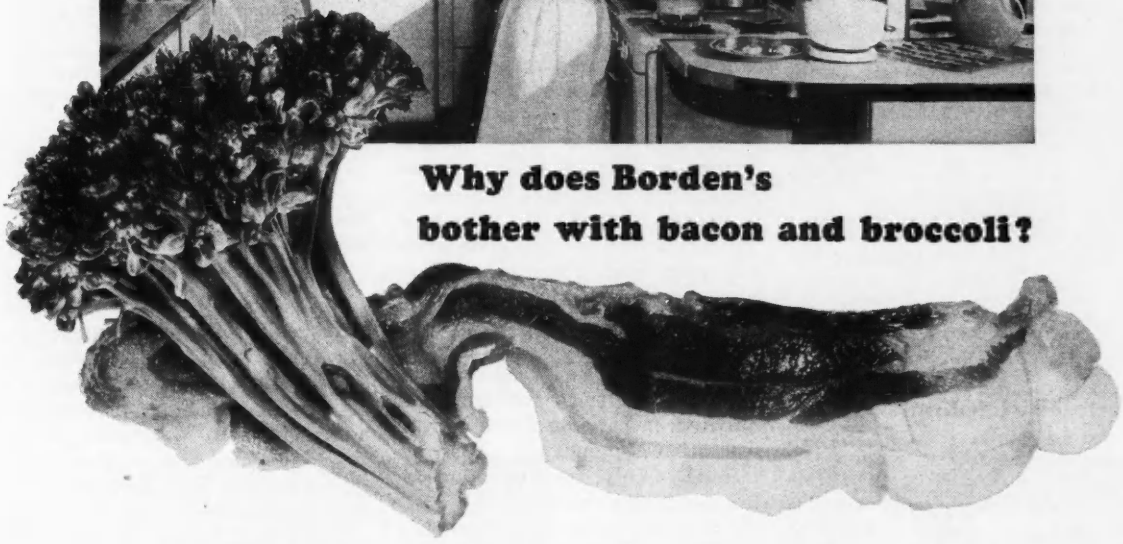
Future work may indicate the need of augmented supplies of other food materials. The knowledge that some cattle require more calcium or more magnesium than others suggests that some human beings may have greater mineral requirements than others.

Williams (5) describes alcoholism as a genetotrophic disease. His experiments with rats indicate that reactions toward alcohol are due to inborn differences. In an ordinary colony, some rats are teetotalers, some moderate drinkers, and some drink alcohol solutions freely. Inbred strains drink rather uniformly. Animals placed on marginal diets (lacking in adequate amounts of B vitamins) all consume alcohol at a fairly high level. With adequate diets, they do not drink appreciably. However, different animals do not respond to the same vitamins. As a result of their work, Williams and associates conclude that (a) alcohol consumption by rats is induced by mild nutritional deficiencies and that by eliminating the deficiencies the appetite for alcohol is abolished, and (b) in an ordinary colony, individual rats are deficient to different degrees and in different food elements. A deficiency of one or more of the following in rats contributes to the production of an alcohol appetite: thiamine, riboflavin, calcium pantothenate, pyridoxine, and vitamin $B_{12}$.

The outlook for the treatment of human alcoholics is hopeful in view of the great success of nutritional treatments in the past. Williams (5) advocates daily dosage, by means of capsules, of generous amounts of nutrients—especially the B vitamins. No food source is rich enough to supply abundant amounts of all of these. The person being treated must avoid deficiency continuously all his life in order that his appetite for alcohol will remain abolished.

Brain metabolism is most active and crucial; violent mental disease has inadvertently been produced in some people by nutritional deficiency and has been completely cured by supplying the missing food element. Thus, the particular inborn requirements of potential schizophrenics for certain nutrients may precipitate mental disease if severe deficiency occurs (5).

Further work must be done to determine how great is the difference for each nutrient between the maximum individual requirement and the average population requirement. If the differences or gaps are small, the importance of the genetotrophic concept diminishes. At present, evidence is strongly in favor of the theory; also, if one pauses to



**Why does Borden's bother with bacon and broccoli?**

• The Borden Company has always been vitally interested in how its products are used in the home. For that is where they must pass the most exacting tests of nutritional value and taste satisfaction.

• Because Borden's interest in milk, dairy items, instant coffee and its other food products goes beyond just the mechanics of processing and packaging, the Company established its own Test Kitchen a full quarter of a century ago. In this modern of modern kitchens, a staff of trained, graduate home economists develops and tests thousands of dishes typical of those served by the average American housewife.

• Here in Borden's Test Kitchen, new recipes are developed. Here, Borden products are tested to see how they meet homemakers' needs, how well they fit the daily menu. Varieties of muffins, some made with evaporated milk, some with dry skim milk, and some with bacon or bran. Cheese sauces for broccoli and cream sauces for fish. In all, a most tempting and nutritious array of dishes for every meal during the day, and for every course in every meal, from traditional hamburgers and ice cream, to more elaborate dainties for those "special occasions."

• Yes, Borden bothers with bacon and broccoli to help improve nutritional standards, and to help American housewives serve tastier meals. Any product bearing the Borden label is one you can use and recommend with confidence...For..."If it's Borden's, it's got to be good."

Manufacturers and distributors of BORDEN'S Instant Coffee

STARLAC non-fat dry milk • BORDEN'S Evaporated Milk • Fresh Milk • Ice Cream • Cheese • EAGLE BRAND Sweetened Condensed Milk
BREMIL powdered infant food • MULL-SOY hypoallergenic food • BIOLAC infant food • DRYCO infant food and KLIM powdered whole milk.

The Borden Company • 350 Madison Avenue, New York 17, N. Y.

reflect on the many ways in which we differ from one another visibly, the concept that our metabolic patterns require different levels of nutrients is not difficult to accept.

REFERENCES

(1) MITCHELL, H. K., AND HOULAHAN, M. B.: Investigations on the biosynthesis of pyrimidine nucleosides in Neurospora. Federation Proc. 6: 506, 1947.
(2) WILLIAMS, R. J.: Concept of genetotrophic disease. Nutrition Rev. 8: 257, 1950.
(3) LIGHT, R. F., AND CRACAS, L. J.: Vitamin $B_1$ requirements of different strains of white rats. Science 87: 90, 1938.
(4) LAMOREUX, W. F., AND HUTT, F. B.: Genetic resistance to deficiency of riboflavin in the chick. Genetics 28: 79, 1943.
(5) WILLIAMS, R. J.: Nutrition and Alcoholism. Norman, Okla.: Univ. of Oklahoma Press, 1951.
(6) WETZEL, N. C., FARGO, W. C., SMITH, I. H., AND HELIKSON, J.: Growth failure in school children as associated with vitamin $B_{12}$ deficiency. Response to oral therapy. Science 110: 651, 1949.

## Fructose Metabolism

*Kopilovich Shai*

Patients suffering from diabetes have difficulty in metabolizing glucose due to a deficient supply of insulin. In normal glucose metabolism, hexokinase and adenosine triphosphate convert glucose to glucose-6-phosphate. This change is inhibited both *in vivo* and *in vitro* by anterior pituitary extract. When this inhibition is counteracted by insulin (1), glucose is metabolized efficiently.

Deuel (2) showed that fructose is phosphorylated differently than glucose. Wyshak and Chaikoff (3) indicate that there are two enzymes involved in glucose oxidation which are not involved in fructose oxidation: glucokinase and isomerase. The former is involved in the conversion of glucose to glycogen through the glucose-6-phosphate stage, and the latter is responsible for the glucose conversion to fructose-6-phosphate. It was noticed that of the two, only glucokinase is involved in depressing glucose metabolism in diabetic livers. Fructose metabolism, however, proceeded normally in all diabetic cases observed.

Chernick and Chaikoff (4) also presented evidence in the same direction. They showed that glucose utilization is blocked at the initial stages of phosphorylation in diabetic livers. Using labeled carbon atoms, it was shown that the oxidation of fructose to carbon dioxide proceeded normally, while the oxidation of glucose was extremely depressed.

Other experiments carried on by Weichselbaum and co-workers (5) showed that fructose infused intravenously disappeared from the blood stream much more rapidly than glucose, and it was a better glycogen-former.

Smith, Ettinger, and Seligson (6) studied the administration of fructose to patients with diabetes. The rate of disappearance of fructose from the blood was directly proportional to its concentration in the blood. By administering comparable amounts of fructose and glucose, it was shown that the phosphate levels fell more rapidly and returned to normal more rapidly after fructose administration.

On the basis of this work, it seems quite probable that fructose will be chosen as the sugar for parenteral nutrition in patients whose glucose utilization is impaired. Diabetes mellitus is only one example where fructose may be preferred (7).

There are, however, various data which are not in full agreement with this belief. It has been shown (8) that while fructosuria values were low and glucosuria were high when the respective sugars were administered, this seemed to be only temporary. Fructose was well utilized at first, but there was a gradual increase in glucosuria to the point where there was no observed advantage in using fructose.

Since the development of commercial fructose is comparatively recent, insufficient clinical and experimental evidence on its use is available. Yet, from the evidence at present, it seems that fructose may have a good potential future in the treatment of diabetic patients. This alone would justify additional research in evaluating the correct use of the sugar in intravenous administration.

REFERENCES

(1) Action of insulin. Nutrition Rev. 4: 78, 1946.
(2) DEUEL, H. J., JR.: The intermediary metabolism of fructose and galactose. Physiol. Rev. 16: 173, 1936.
(3) WYSHAK, G. H., and CHAIKOFF, I. L.: Metabolic defects in the liver of fasted rats as shown by utilization of $C^{14}$-labeled glucose and fructose. J. Biol. Chem. 200: 851, 1953.
(4) CHERNICK, S. S., and CHAIKOFF, I. L.: Two blocks in carbohydrate utilization in the liver of the diabetic rat. J. Biol. Chem. 188: 389, 1951.
(5) WEICHSELBAUM, T. E., MARGRAF, H. W., and ELMAN, R.: Metabolism of intravenously infused fructose in man. Metabolism 2: 434, 1953.
(6) SMITH, L. H., ETTINGER, R. H., and SELIGSON, D.: A comparison of the metabolism of fructose and glucose in hepatic disease and diabetes mellitus. J. Clin. Investigation 32: 273, 1953.
(7) Fructose and invert sugar versus glucose. Nutrition Rev. 11: 299, 1953.
(8) Parenteral administration of fructose. Nutrition Rev. 9: 173, 1951.

## Bacteria in Human and Animal Nutrition

*Rauno A. Lampi*

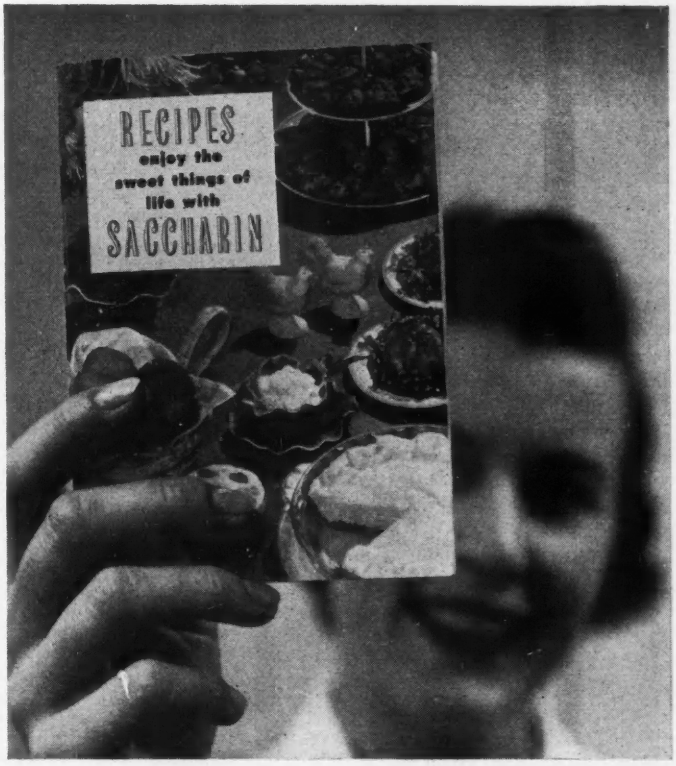
Bacteria may be beneficial as well as harmful to the human organism. For a number of years *Lactobacillus acidophilus* (1) has been known to be of some aid in maintaining normal digestive conditions in the large intestine, even to the extent that attempts have been made to introduce some of these organisms into the large intestine. They help maintain acidity and prevent the growth of proteolytic bacteria, which putrefy unabsorbed proteinaceous matter forming ptomaines, or complex amines, whose absorption presumably leads to "autointoxication." *Lactobacillus acidophilus* ferments the undigested carbohydrate in the large intestine, forming organic acids which inhibit growth of proteolytic bacteria.

The organic acids of carbohydrate fermentation also aid in stimulating bowel movements, presumably by forming esters of choline and organic acids (2). It has long been known that foods "high in bulk" aid in the maintenance of regularity in bowel movements, but the method by which they do is now recognized as chemical as well as mechanical. Such foods as dried fruit, cracked wheat bread, and lactose-containing foods are generally high fermentation items. Diets for combating constipation might well be called "high fermentation" rather than "high residue" or "bulk" diets.

In the breakdown of carbo-

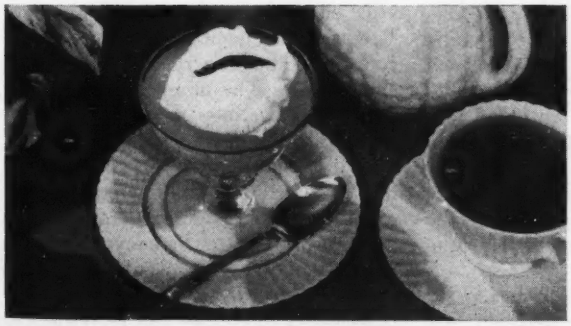
# Add more zip to low-calorie diets with this free booklet

- Written *for* dietitians *by* dietitians
- Makes low-calorie diet planning easy
- Contains over seventy recipes, all using saccharin
- Every recipe given with calorie count
- Every recipe tested by taste panel
- Every recipe developed by a graduate dietitian
- Covers salad dressings, pies, muffins, beverages, cupcakes, cookies, puddings, fat-free whipped topping, custards



**Graduate dietitian supervises** the entire development of low-calorie recipes featured in Monsanto booklet. Use this booklet to add interest to your low-calorie diets.

**Testing and retesting** is done at every step of development of recipes using saccharin. Only recipes approved by the taste panel go into Monsanto booklet.



**Low in calories, good to taste,** this Low-Fat Whipped Topping is typical of the many dishes which can be prepared by using Monsanto booklet of saccharin recipes.

MONSANTO

**FOR YOUR COPY OF BOOKLET, MAIL COUPON TODAY.**

Serving Industry . . . Which Serves Mankind

Organic Chemicals Division
MONSANTO CHEMICAL COMPANY
Box 478, St. Louis 1, Missouri

Please send me copy of your saccharin recipe booklet.

*Name*..... *Title*.....

*Company*.....

*Street*.....

*City*..... *Zone*..... *State*.....

hydrates by bacterial action, organic acids and carbon dioxide are not the only products. It is probable that minor amounts of celluloses, hemi-celluloses, pectin, and inulin are broken down by the enzymatic influence of intestinal flora into monosaccharides that are absorbed into the blood stream (3). This action occurs to a greater extent in animals than in man where less than 5 per cent of the carbohydrates are broken down in this manner.

The formation of vitamin K, the fat-soluble anti-hemorrhagic factor, by bacteria has been demonstrated *in vitro*, one commercial source of vitamin $K_2$ being putrified sardine meal (4). It appears that man has two sources of vitamin K—preformed vitamin $K_1$ in the diet and the vitamin $K_2$ formed by bacterial growth in the intestinal tract.

Many experiments have been made on the utilization of vitamins and amino acids by bacteria *in vitro*. The results of some of these experiments have led to theories on the mechanism of the metabolism of amino acids and vitamins in the human body by bacteria. It has been shown that decarboxylation of amino acids to an amine and carbon dioxide occurs in certain animals only under the influence of specific bacterial enzymes which serve to catalyze the reaction (5).

The ability of the body to use over again some of the amino acids or even the products of their intermediary metabolism may play a part in the ability of relatively simple nitrogen compounds to replace a part of the protein in feeding farm animals (4). In this phenomenon there may be at work the factor of synthesis of protein from simpler compounds, such as urea, by bacteria or other microorganisms in the digestive tract.

As stated previously, attempts to learn the pathways and reactions of vitamins and amino acids in the human body have been made by observing the utilization of these substances by bacteria, where, because of their simple structure, reactions and products can be more easily traced. For example, it has been shown that pyridoxine, in the form of the coenzyme pyridoxal phosphate, is responsible for the synthesis (by a cell-free enzyme preparation derived from Neurospora) of tryptophan from precursors indole and serine (5). Also, the conversion of *l*-histidine to glutamic acid by a cell-free extract of *Pseudomonas fluorescens* has been demonstrated (6). A third sample of this type of investigation is the anaerobic deamination of threonine to 2-keto butyric acid by bacteria in a manner analogous to that in which pyruvic acid is produced from serine (6).

The valuable experimental data obtained from the observation of bacteria in animal intestines and the metabolic studies of bacteria themselves indicate that bacteria may play a more important part than we realize in aiding digestion, and in synthesizing amino acids, vitamins, and enzymes in both animals and human beings.

REFERENCES

(1) THOMA, K.: Food in Health and Disease. Philadelphia: F. A. Davis Company, 1933.
(2) PORGES, O.: Analysis of dietetic treatment of constipation. Am. J. Digest. Dis. 20: 205, 1953.
(3) WOHL, M. G.: Dietotherapy. Clinical Application of Modern Nutrition. Philadelphia: W. B. Saunders Company, 1945.
(4) SHERMAN, H. C.: Chemistry of Food and Nutrition. 8th ed. New York: The Macmillan Co., 1952.
(5) WOODS, R.: Dietary interrelationships: Pyridoxine and amino acid metabolism. Borden's Rev. Nutrition Res. 10: No. 4, 1949.
(6) BERG, C. P.: Physiology of *d*-amino acids. Physiol. Rev. 33: 145, 1953.

## Amino Acid Requirements for Blood Regeneration

*Milton Kaplow*

In anemia and hypoproteinemia due to hemorrhage, the protein needs for blood regeneration become more acute. Nizet and Robscheit-Robbins (1) have shown that protein is necessary for the ripening of red blood cells in dogs with experimental hemorrhagic anemia. The ripening time of red blood cells was closely related to hemoglobin regeneration. When the ten essential amino acids plus glycine were added to the blood of the anemic dogs, reticulocyte ripening was facilitated.

Chandran and Damodaran (2) showed the relation between isoleucine and hemoglobin formation. Rats were made anemic by injection with phenylhydrazine, after which they were fed diets containing various amounts of isoleucine. Rats fed on a diet of 18 per cent horse globin with no isoleucine or with only 10 mg. isoleucine required twenty-one days for recovery, as measured by red cell count and hemoglobin. Those rats receiving 20, 40, and 100 mg. isoleucine in the diet, as well as those given 20 mg. isoleucine intravenously, showed recovery in eight days. In general, the oral administration was more efficient.

Albanese (3) demonstrated that plasma protein is not necessarily an accurate reflection of the amino acid intake in infants. In infants on a lysine-poor diet, the plasma protein and the albumin-globulin ratio remained normal, but the amount of arginine in the blood increased.

More detailed work on the effect of individual amino acids on blood regeneration has been done by Sebrell and McDaniel (4). In their work, anemia was produced in rats by bleeding them of approximately 2 per cent of their body weight on each of four successive days and keeping them on a protein-free diet. The test diets, which were fed for the following ten days, consisted of eleven combinations, the first containing all ten essential amino acids and the others each lacking in one of the essential amino acids. The diets were similar in other respects. Recovery was measured by hematocrit determinations; red, total white, and polymorphonuclear cell counts; serum protein; and hemoglobin.

After ten days on the diet containing all of the essential amino acids, the hematocrit, hemoglobin, red cell counts, and serum proteins were restored to normal. Total leukocytes, polymorphonuclear leukocytes, and body weight gains were still below normal at that time. Recovery in hemoglobin, red cell counts, and hematocrit occurred at a similar rate. The omission of histidine and valine resulted in a significant retardation, while lack of arginine, methionine, or tryptophan had little or no effect. The omission of valine reduced the regeneration of polymorphonuclear leukocytes and other white blood cells. In the regeneration of serum proteins, omission of threonine, valine, lysine, or tryptophan had the greatest retarding effect.

In general, it was found that the

*Geo. A. Hormel & Co., Austin, Minnesota*

Sexton
Quality Foods

For meals that appeal

If you could look behind the walls of this mammoth plant and into the kitchen where thousands of meals are prepared daily, you would see the Sexton label on many foods, including the spices and seasonings that mean so much in the preparation of tasty meals. Sexton spices are among our special prides. We select only the finest, mill them daily and package them immediately to protect all their flavor and pungency,—in special sized containers for the chef—in handsomely styled containers for the guest.

JOHN SEXTON & CO., CHICAGO, 1954

lack of amino acids normally present in large amounts in hemoglobin resulted in the greatest retardation of hemoglobin formation. Histidine, valine, leucine, and lysine are in this classification. Isoleucine, while present in small amounts in hemoglobin, was also important in hemoglobin regeneration.

All of this work shows the importance of the ten essential amino acids, with the possible exception of arginine, in blood regeneration. It is particularly noteworthy that the individual amino acids have specific effects for different blood fractions.

It should be noted that blood regeneration is exceedingly complicated, and that it is also affected by by the presence of vitamin $B_{12}$, folic acid, and iron, as well as by amino acids.

REFERENCES

(1) NIZET, A., AND ROBSCHEIT-ROBBINS, F. S.: Reticulocyte ripening in experimental anemia and hypoproteinemia. Effect of amino acids in vitro. Blood 5: 648, 1950.

(2) CHANDRAN, K., AND DAMODARAN, M.: Amino-acids and proteins in haemoglobin formation. 2. Isoleucine. J. Biochem. 49: 393, 1951.

(3) ALBANESE, A. A.: Effect of a lysine-poor diet on the composition of human plasma proteins. J. Biol. Chem. 200: 787, 1953.

(4) SEBRELL, W. H., JR., AND MCDANIEL, E. G.: Amino acids in the production of blood constituents in rats. J. Nutrition 47: 477, 1952.

## Heat and the Nutritive Value of Animal Protein

*Elizabeth M. Elbert*

That scum forms on the surface of heated milk, that an egg coagulates on heating, and that a portion of the drippings from meat gel are not new facts. But what happens to the nutritive value of animal protein when heated? Might not this also undergo change? Amino acid composition and digestibility are the most important properties involved in measuring the biologic value of proteins. Heat may impair the digestibility and/or destroy amino acids.

Low temperature meat cookery is highly desirable if one considers such factors as palatability, waste, and nutritional value. Pork cooked at 212°F. differed but slightly from raw pork insofar as the protein value was concerned. But, cooking the pork at 235°F. for 2 hr. resulted in a definite reduction in growth-promoting power, as measured by rat studies (1). Round of beef roasted at a low temperature to the medium stage of doneness had practically the same digestibility and biologic values as did the raw meat (2). Roasting rib cuts at 325°F. until well done and corning round of beef changed neither the biologic value nor the digestibility, although the heat treatment used in canning beef lowered both its biologic value and digestibility (3). Frying bacon to either the limp or crisp stage is unlikely to reduce protein value (4).

There is little evidence that the amino acids of meats are actually destroyed during heating if the protein is not charred. However, an altered rate of digestion of overcooked meats has been indicated (5). Amino acids must be available simultaneously for body metabolism; interference with such a requirement results in decreased biologic value.

The greatest amount of experimental work involving the study of heat damage to proteins has been done with milk and milk protein. Temperatures used in processing commercial evaporated milk do not cause heat damage to the proteins (6, 7). Presumably, temperatures used in commercial pasteurization would also have little or no effect on the protein value. Non-preheated, spray-dried skim milk powder gave good rat growth (8). In commercial practice, milk which is to be spray-dried is often preheated to temperatures of 140°F. to 160°F. This destroys most bacteria and enzymes. Preheating the milk at approximately 145°F. for 30 min. decreased the protein growth efficiency of the dried product 13 per cent, while preheating for 15 min. at approximately 190°F. decreased the efficiency 15 per cent (8).

When heat damage occurs, indications are that the milk protein fraction reacts with a carbohydrate to decrease the digestibility, but that fraction of the protein which is digested and absorbed is of high biologic value. Protein linkages may be formed which resist both *in vivo* and *in vitro* digestion by enzymes (9), thus rendering the groups unavailable to the animal body. This protein-carbohydrate theory is well demonstrated by the damage occurring when commercial lactalbumin is heated. This product contains reducing substances, especially lactose. Lactose, glucose, maltose, xylose, and fructose seem equally effective in decreasing the protein digestibility of lactalbumin (9). The reaction is noticeable even at relatively low temperatures and with comparatively short heating periods. As little reducing sugar is present in meat, the theory does not seem applicable in explaining heat damage which may occur in protein of canned meat.

Moisture has been shown to play an important role in heat damage to milk protein (10, 11). Commercial lactalbumin *dry*-heated at 248°F. for 1 hr. did not lose the nutritional value of its protein. Autoclaving with 15 lb. steam pressure for 30 min. decreased the protein value of both commercial lactalbumin and dried skim milk. By reconstituting the dried skim milk prior to heating, the damaging effect of the heat on the protein value was prevented. Apparently the liquid or water phase of the dispersion of milk solids exerts a retarding influence on the protein-sugar reaction involved in protein damage, whereas the presence of but a small amount of moisture, as in autoclaving, increases the reaction. We might conclude, then, that the heating of fluid milk would not decrease the nutritive value of the protein.

Thus it seems that the temperatures and times commonly employed in the preparation of animal protein do not decrease to any great extent the nutritive value of the proteins. However, one should not forget that heat damage increases with temperature and/or time.

REFERENCES

(1) BEUK, J. R., RUEGAMER, W. R., AND RICE, E. E.: The effects of heat upon the nutritive value of protein. *In* Advances in Food Research. Vol. IV. New York: Academic Press, Inc., 1953.

(2) MITCHELL, H. H., HAMILTON, T. S., AND BEADLES, J. R.: The nutritional effects of heat on food proteins with particular reference to commercial processing and home cooking. J. Nutrition 39: 413, 1949.

(3) MAYFIELD, H. L., AND HEDRICK, M. T.: The effect of canning, roasting and corning on the bio-

℞ FOR INSTITUTIONAL FOOD SERVICE
SYRACUSE China
The Finest Quality Chinaware
—Admired for Lasting Beauty
—Desired for Durability
For food service with extra "meal appeal" plus long-term economy in use, nothing takes the place of china... and among all china, dietitians consistently specify Syracuse China, industry leader in style and value since 1871.
Compare Syracuse with any china or other tableware. Compare for beauty, the full selection of charming, colorful patterns in character with lovely, but functional shapes. Compare for durability, the famous Syracuse quality that insures exceptional strength and long service. Compare for sanitation, the high-fired vitrified body and steel-hard glaze that prevents crazing or scratching, protects the pattern and will not absorb harmful dirt, grease or bacteria.
Visit your Syracuse China dealer soon and see the many popular and promptly available stock patterns on display — each invested with traditionally fine Syracuse quality and maximum utility value.
Sold by the Industry's Leading Distributors
SYRACUSE SINCE 1871 China
SYRACUSE, NEW YORK
CHARMAINE, Winthrop Shape
SANTA ROSA SYRATONE, Empire Shape
EMBASSY, Morwel Shape

logical value of the proteins of western beef, finished on either grass or grain. J. Nutrition 37: 487, 1949.

(4) McBride, B. H., Guthneck, B. T., Hoffert, E., Knickel, D., and Schweigert, B. S.: Effect of frying bacon on the nutritive value of the protein. J. Nutrition 45: 393, 1951.

(5) Beuk, J. F., Chornock, F. W., and Rice, E. E.: The effect of heat on the availability of pork proteins *in vivo* and *in vitro*. J. Biol. Chem. 180: 1243, 1949.

(6) Hodson, A. Z.: Nutritive value of milk proteins. 1. Stability during sterilization and storage of evaporated milk as determined by the rat repletion method. Food Research 17: 168, 1952.

(7) Schroeder, L. J., Iacobellis, M., and Smith A. H.: Heat processing and nutritive value of milk and milk products. Federation Proc. 10: 393, 1951.

(8) Cook, B. B., Morgan, A. F., Weast, E. O., and Parker, J.: The effect of heat treatment on the nutritive value of milk proteins. 1. Evaporated and powdered milks. J. Nutrition 44: 51, 1951.

(9) Schroeder, L. J., Stewart, R. A., and Smith, A. H.: The nutritive effect of heating lactalbumin in the presence of various reducing sugars. J. Nutrition 45: 61, 1951.

(10) Mader, I. J., Schroeder, L. J., and Smith, A. H.: The effect of carbohydrate on the nutritive value of heated lactalbumin. J. Nutrition 39: 341, 1949.

(11) Schroeder, L. J., Iacobellis, M., Lees, H., and Smith, A. H.: The effect of heat on the nutritive value of milk proteins as influenced by water and fat. J. Nutrition 50: 351, 1953.

## Are Hospital Patients Satisfied?

The coefficient of patient satisfaction is not a simple determination. There are many ways to do it. We can sit in our offices and weigh the compliments against the complaints. We can have a few well chosen questions presented by a dietitian or a head nurse. But I like the patient opinion poll on a secret ballot. Some of the air lines and hotels have used this method—with a very limited number of questions, however.

We sample patient opinion by means of a booklet containing forty questions, which is given to the patient on discharge, together with a stamped envelope addressed to the administrator. Five of the forty questions relate to food.

We obtain about a 50 per cent return, but the remarkable part is the fact that 45 per cent of those who reply take the time to comment—some quite extensively—and nearly half of this number discuss the food service. Thus, out of each 1000 questionnaires given to patients, 500 answer all five food questions, and 110 of them tell us further, in their own words, what they think of the food and the way it is served.

This patient opinion poll is most valuable. It has resulted in a number of constructive changes in the dietary department. What you might not suspect is that it is a wonderful morale booster. Some of the comments have been complimentary to the point of being embarrassing. We know that we cannot be as good as some patients think we are.

Although most of the criticism is constructive, some of the comments are adverse, of course. Occasionally we read something like this not-too-original couplet:

> The coffee that they serve us they say is very fine
> It's good for cuts and bruises and tastes like iodine.

The most gratifying result of the patient poll is that, in contrast to what we have believed to be adverse popular opinion concerning hospital meals, *most people like hospital food*. This is a tribute to the advances which the dietetic profession has accomplished in hospitals, in the face of many difficulties.—*Harold T. Prentzel, Administrator, Montgomery Hospital, Morristown, Pennsylvania, peaking before the Pennsylvania Dietetic Association in Philadelphia on April 30, 1954.*

## Tenderizer Improves "Budget" Beef

A meat tenderizer containing the proteolytic enzyme, papain, increased the tenderness of round steaks, sirloin steaks, and rump roasts treated at room temperature in a study conducted at Kansas State College, Manhattan.

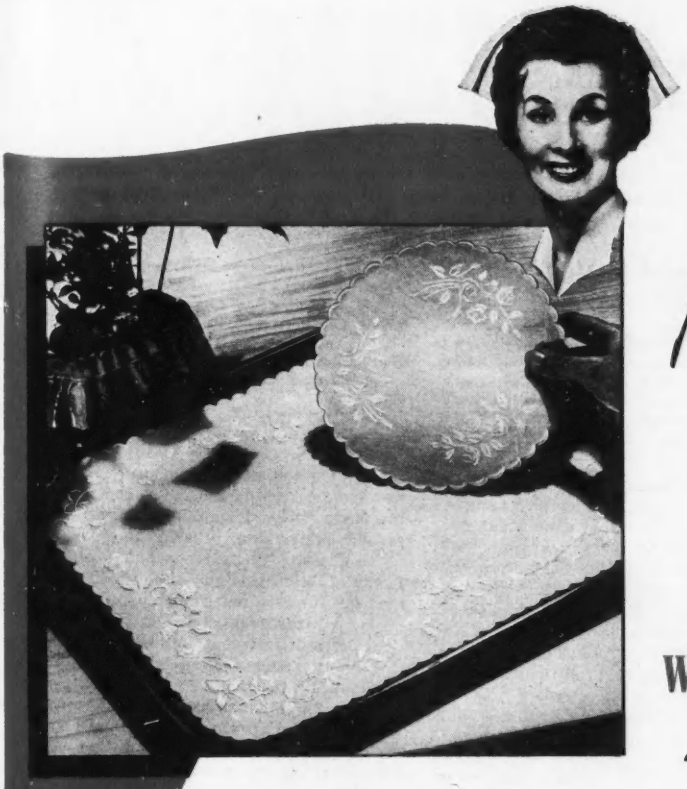
The increase in tenderness, as measured by eight judges' scores and by shear values, was highly significant for top round and sirloin tip steaks, and for the bottom round steaks as measured by shear values. The number of chews needed to masticate completely a certain size bite of meat was used as the criterion for the judges' scores.

A panel also scored the meat for aroma, flavor of lean, and juiciness. In addition, a test was made to determine whether a group of one hundred persons preferred meat treated with seasoned tenderizer (which had a strong garlic flavor), with unseasoned tenderizer, or untreated. Ninety-three per cent of this group preferred the meat treated with the tenderizer; 40 per cent chose the seasoned tenderizer, and 53 per cent, the unseasoned.

There was no significant difference due to the tenderizer's action in the total cooking losses in weight, in flavor, or in aroma of any of the cuts.

Scores for juiciness were generally higher for untreated than for treated meat, differences in scores being highly significant for top round and sirloin tip steaks and significant for rump roasts. Yields of press fluid for treated and untreated cuts were not significantly different, indicating that color or apparent "doneness" of the meat, rather than actual juiciness, may have had some influence on these scores.

—*Abstracted from: Hay, P. P., Harrison, D. L., and Vail, G. E.: Effects of a meat tenderizer on less tender cuts of beef cooked by four methods. Food Technol. 7: 217 (May), 1953.*



## *The Touch that Makes the Patient Happy !*

Milapaco "ROSE LINEN"

Embossed Paper

# TRAY COVERS

## with Matching Doilies

*ATTRACTIVE!*
*SANITARY!*
*ECONOMICAL!*

To brighten up tray service, to lighten cost burdens, look to embossed paper tray covers like "Rose Linen", another popular design by Milapaco. This attractive tray cover, with matching doily, faithfully simulates in paper the delicacy and texture of real linen.

In linen — or any of many distinctive lace or stock and special print designs — Milapaco tray covers add welcome "meal appeal" to hospital tray service . . . always fresh, clean and sanitary . . . used once and discarded to reduce contamination . . . extra soft to prevent sliding, absorb spillings and reduce noise from the clatter of china and utensils.

A proven economy, too, Milapaco tray covers cost but penny-fractions per serving . . . come in a wide range of sizes to fit any tray . . . cut linen costs . . . reduce laundry-labor expense . . . save wear on trays . . . speed up service . . . and store compactly.

The happy touch for the patient — and the dietitian and purchasing agent, too — Milapaco tray covers are indeed a "preferred stock." And for all your specialty needs, look to the famous Milapaco family, a complete dependable source of quality specialty paper products.

**Napkins, Doilies, Place Mats, Tray Covers. Cups: Drinking, Portion, Baking. Special and Stock Print Table and Bar Service. Absorbent Single-Service Paper Bath Mats.**

WRITE or CALL

Milapaco

## MILWAUKEE LACE PAPER CO.

Division of Smith-Lee Co., Inc.

1310 E. Meinecke Ave. Milwaukee 12, Wisconsin

SPECIALTY PAPER PRODUCTS OF CHARACTER SINCE 1898

# Current Literature

*Contributed by Mildred Bonnell and administrative dietetic interns, University of Washington, Seattle; Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital, Baltimore; Elizabeth H. Tuft, Wesley Memorial Hospital, Chicago; and the Journal staff*

## AMERICAN JOURNAL OF DIGESTIVE DISEASES

*Vol. 21, June, 1954*

*Clinical studies in blood lipid metabolism. IX. Effect of lipotropic agents on serum lipid partitions in fifty patients with generalized atherosclerosis: A three year study. A. A. Goldbloom, H. B. Eiber, and L. J. Boyd.—p. 152.

Normal G. I. (gastro-intestinal) diet. M. B. Levin and B. A. Gwynn.—p. 158.

**Blood Lipids in Atherosclerosis.** Fifty patients with clinical generalized atherosclerosis and chronic coronary artery disease were maintained on a low-fat, low-cholesterol diet for thirty-six months. Twenty-five were given therapeutic dosages of lipotropic preparation. Serum lipid fractions, such as cholesterol, phospholipids, total lipids, and neutral fats, were determined and averaged on all patients at the onset of the study and at six-month intervals for three years. Except for a slight decrease in blood serum cholesterol of all the fifty patients, attributable to the low-fat dietary restrictions, there were no significant differences in any of the other serum lipid fractions. Changes in the phospholipid:cholesterol ratio were practically the same in the control and lipotropic groups. Low-fat, low-cholesterol diets will attain the same result in reducing serum lipid partitions as the lipotropic agents. Loss of weight had no bearing on the diminution of the lipid partitions. There is no clinical or laboratory confirmation for the value of the administration of the present known lipotropic preparations in the treatment or prophylaxis of human atherosclerosis.

## THE AMERICAN JOURNAL OF MEDICINE

*Vol. 16, June, 1954*

*Cirrhosis of the liver. C. S. Davidson.—p. 863.

**Cirrhosis.** Cirrhosis of the liver has been associated with alcoholism for many years. The fact that cirrhosis can be produced in animals given diets low in protein, especially methionine and choline, and the observation that it is found in many areas of the world, particularly in the tropics, as a disease of persons consuming a diet grossly deficient in protein has led to the concept that alcohol merely supplies calories without protein, choline, and particularly the essential amino acid, methionine. It is, however, possible that alcohol or alcoholic beverages alter metabolism in a way that increases the susceptibility of an individual to cirrhosis. Nevertheless, it seems quite clear that the major factor in the etiology of cirrhosis in alcoholics is faulty nutrition, specifically of methionine and choline.

## AMERICAN JOURNAL OF PHYSIOLOGY

*Vol. 177, June, 1954*

*Regulation of food consumption by caloric value of the region in rats exposed to cold. E. A. Sellers, R. W. You, and N. M. Moffat.—p. 367.

*Exercise, food intake, and body weight in normal rats and genetically obese adult mice. J. Mayer, N. B. Marshall, J. J. Vitale, J. H. Christensen, M. B. Mashayekhi, and F. J. Stare.—p. 544.

**Food Intake in Cold.** Various diets with a constant protein content and containing from 5 to 44 per cent of fat were fed to rats living in an environment of 1.5°C. The amount of food ingested was less with diets of high, than with low content of fat, but the caloric intake was remarkably constant regardless of the amount of dietary lipid. The amount of protein consumed and the urinary nitrogen excreted were less when high-fat diets were fed. The higher caloric value of fat per unit weight made it possible to obtain the needed calories in a smaller weight of food. The protein intake was consequently less with high- than with low-fat diets. No consistent difference in rate of survivals or of increase in body weight occurred, which was attributable to the amount of lipid in the diet. The growth rate was lower than is usual at room temperature regardless of the diet. Suggestive evidence was obtained that when excessive amounts of inert material (Cellu flour) were added to a diet, palatability and possibly digestion or absorption were adversely affected.

**Exercise, Food Intake, and Body Weight.** When mature rats accustomed to a sedentary existence were exercised on a treadmill for increasing daily periods, it was observed that for short durations of exercise (20 min. to 1 hr.) there was no corresponding increase in food intake. Actually food intake decreased slightly but significantly. Body weight also decreased. For long durations of exercise, the animals lost weight, their food intake decreased, and their appearance deteriorated. Comparisons of reactions of rats and mice to exercise show that there are some species differences in degree of reaction; similarly, comparison of reactions to exercise of genetically obese and goldthioglucose mice show differences in degree of reaction to exercise in different types of obese animals. The importance of considering exercise as well as food intake in problems of obesity is again illustrated by these results.

## AMERICAN JOURNAL OF PUBLIC HEALTH

*Vol. 44, July, 1954*

*Cardiovascular health center. H. E. Hilleboe, G. James, and J. T. Doyle.—p. 851.

*Obesity and degenerative heart disease. A. Keys.—p. 864.

*Views of the National Congress of Parents and Teachers in regard to fluoridation. H. F. Helmholz.—p. 884.

How fluoridation facts were presented to the citizens of Baltimore, Md. H. B. McCauley.—p. 892.

**Cardiovascular Health Center.** The steps in the development of the Albany (New York) Cardiovascular Health Center are outlined to illustrate how modern public health agencies can maintain their leadership during the present period when a basic change is occurring in the program content of public health. Emphasis is placed on the need to seek out for each new health problem the particular research contribution which the health department can best perform.

**Obesity and Degenerative Heart Disease.** Overweight *per se*, except when it is of extreme degree, is not a primary cause of coronary disease and the myocardial disorder to which it gives rise. There is some evidence that overweight may contribute to the development of hypertensive heart disease, however. Dieting to lose weight is highly desirable in true obesity, but a mere reduction in general food consumption is not likely to accomplish reduction of our heart disease mortality to the level prevailing in those countries with the most favorable records in this regard.

**Fluoridation and the PTA.** The fluoridation of a communal water supply is not a federal or state issue, but is an issue that must be settled by each community. The PTA, with its great interest in the health of children and its large membership, is in a position to influence public opinion successfully. Almost without exception, PTA members have accepted the recommendation of the dental, medical, and public health organizations and are actively at work furthering the fluoridation of communal water supplies.

## ANNALS OF INTERNAL MEDICINE

*Vol. 40, June, 1954*

*How safe is cation exchange resin therapy when used in private practice? C. W. Smith, K. E. Quickel, A. E. Brown, and C. G. Thomas.—p. 1169.

**Cation Exchange Resin Therapy.** Cation exchange resins can be given safely by the physician to nonhospitalized patients without his maintaining elaborate laboratory controls, provided the patient is under periodic clinical observation. This treatment is of value in controlling edema, reduces the need for adjuvant mercurial therapy, and is well tolerated by patients. If hypocalcemia develops, its onset can be recognized through clinical symptoms, and the condition controlled by administering calcium salts.

# NEW APPLE JELL-O!

## A sensation for salads... and sales!

The famous six delicious flavors are now seven! Meet new Apple Jell-O!

New Apple Jell-O's got everything that your salad-loving customers want. Bright and tangy taste! Shimmering golden color! And variety, variety, variety! Look here for instance... Fruit Nut Salad made with wondrous new Apple Jell-O. Easy to make and costs you only about 5 cents a portion to serve.

Your supplier now has sensational new Apple Jell-O. Get some and you'll find that the money-making six now have a money-making seventh!

**New Apple Jell-O**

. . . Delicious

. . . Different

. . . Tangy

## APPLE JELL-O FRUIT NUT SALAD

1 pound (2⅓ cups) Apple Jell-O
1 teaspoon salt
2¾ quarts hot water and apricot juice
2 tablespoons lemon juice
1¼ quarts drained canned sliced apricots
2 cups coarsely broken pecan meats

**1.** Dissolve Jell-O and salt in hot liquid. Add lemon juice and chill until slightly thickened.

**2.** Fold in apricots and nuts. Turn into individual molds or shallow pans, distributing fruit evenly.

**3.** Chill until firm. Unmold or cut in squares.

**4.** Serve on crisp lettuce with mayonnaise. Or, for a dessert, serve with sweetened whipped cream and dash of nutmeg. Makes 32 portions, 4 ounces each.

Costs about 5 cents a portion.

(Toasted broken almonds may be used for the nuts in this recipe. And canned peaches, pears, or pineapple, or stewed prunes may be substituted for apricots.)

**FREE OFFER:** Mail coupon today for free copy of leaflet containing a variety of additional interesting and profitable Apple Jell-O recipes.

(Jell-O is a registered trade-mark of General Foods Corporation)

**General Foods Corporation**
**Institution Food Service, Dept. J9**
**White Plains, N. Y.**

Please send me a *free copy* of leaflet containing interesting and profitable Apple Jell-O recipes.

**Name** _____

**Street** _____

**City** _____ **Zone** _____ **State** _____

## THE BRITISH JOURNAL OF NUTRITION

*Vol. 8, No. 1, 1954*

*Effects of partial replacement of rice in a rice diet by tapioca flour on the metabolism of nitrogen, calcium and phosphorous in adult human beings. H. B. N. Murthy, M. Swaminthan, and V. Subrahmanyan.—p. 11.

*Protein ketabolism and oxygen consumption during starvation in infants, young adults and old men. R. A. McCance and W. M. B. Strangeways.—p. 21.

*The distribution of nicotinic acid in the rice grain. J. J. C. Hinton and B. Shaw.—p. 65.

*Vol. 8, No. 2, 1954*

*A relationship between body fat and plasma pseudo-cholinesterase. W. T. C. Berry, P. J. Cowin, and D. R. Davies.—p. 79.

The nutrition of schoolgirls in Northern Nigeria. D. C. Wislon.—p. 83.

*Goitre in Ceylon and Nigeria. D. C. Wilson.—p. 90.

*The nutrition of male industrial workers with particular reference to intake and expenditure of calories. E. R. Bransby.—p. 100.

*Serum cholesterol and the diet in clinically healthy men at Slough near London. A. Keys and M. H. Keys.—p. 138.

*The food intake and energy expenditure of cadets in training. E. M. Widdowson, O. G. Edholm, and R. A. McCance.—p. 147.

*Malnutrition in African adults. I. Serum proteins, cholinesterase, and protein-bound lipid. M. W. Stanier and E. G. Holmes.—p. 155.

*Malnutrition in African adults. 2. Protein storage. E. G. Holmes, E. R. Jones, and M. W. Stanier.—p. 173.

**Partial Replacement of Rice in a Rice Diet by Tapioca Flour.** The results of this experiment indicate that about 25 per cent of the rice in a vegetarian diet could be replaced by an equal quantity of tapioca flour without lowering the retention of nitrogen, calcium, and phosphorus. The metabolism of nitrogen, calcium, and phosphorus was studied in six men fed diets based either on rice or on a mixture of 75 per cent rice and 25 per cent tapioca. The rice diet was similar to that ordinarily consumed by people belonging to the low-income groups in many parts of India. The average daily intake of nitrogen on the rice diet and the rice-tapioca diet was 9.69 and 8.93 gm. respectively. The average retention of nitrogen on the two diets was 2.65 and 2.75 gm. respectively. On the rice diet four subjects were in positive calcium balance and two in negative balance. All six subjects were in positive calcium balance on the rice-tapioca diet. The average daily retention of calcium was 47.2 mg. on the rice diet and 153.4 mg. on the rice-tapioca diet. The average daily intake of phosphorus was nearly of the same order on both diets. The average absorption of phosphorus was only 43 per cent on the rice diet as compared with 60 per cent on the rice-tapioca diet.

**Protein Catabolism and Oxygen Consumption during Starvation.** An experiment was conducted in which normal newborn male infants and young and old men were allowed no food and a restricted fluid intake for 48 to 72 hr. Urine and blood were collected over this time, and the basal metabolic rates were measured. The basal metabolic rate of the three groups averaged 50, 26, and 21 calories per kilogram per 24 hr. respectively during starvation. The body nitrogen catabolized on these days averaged 0.075 gm. per kilogram per 24 hr. in the infants, 0.17 in the young adults, and 0.12 in the old men. Thus the starving young adults and old people derived about 19 per cent of their calories from protein but the infants, during the first 48 hr. of their lives, only 4 per cent.

**Distribution of Niacin in Rice.** The niacin in the grain of two varieties of rice was determined by microbiologic assay after they had been dissected by hand into structural parts. Approximately 81 per cent of the niacin was found in the pericarp and aleurone-layer fraction. The endosperm contained 15 per cent of niacin, with a notable decrease in gradient from the outer to the inner portions. The pattern of distribution is compared with that of thiamine, of which 50 per cent is found in the scutellum. The distribution of niacin was similar in red- and white-skinned varieties and resembled that found in wheat.

**Relationship between Body Fat and Plasma Pseudo-Cholinesterase.** Measurements of surface fat and plasma cholinesterase were made on 345 males. Surface fat was measured as skinfold thickness at five sites. Plasma cholinesterase was estimated from samples of blood collected on filter paper. A highly significant positive correlation was found between the surface fat and plasma cholinesterase for all groups. Body weight only slightly influenced the relationship which, on the limited evidence available, was not in any way affected by caloric intake.

"Just a bug he picked up somewhere* . . ."

*Health authorities say only one dish in ten washed by hand is "safe".

Keep them Healthy with

COLT

AUTOSAN

Guard their health at mealtimes and you'll help keep youngsters physically fit for full-time study and play!

One sure way to guard against "unsafe" dishes is to use Colt Autosan Dishwashing Equipment. In the Colt dishwashing process every step — from contamination-free automatic pre-flush, through exclusive "cloudburst action" wash, to 180° sanitizing rinse — contributes toward cleaner, *sanitary* dishes.

Durable Colt-engineered Autosans are economical to buy, economical to operate. Many have been in daily use for over 25 years! Ask your equipment dealer about Colt Autosan, or write for complete information to: Colt's Manufacturing Company, 912 Sequassen Ave., Hartford 15, Conn.

COLT AUTOSAN DISHWASHER MODEL RC-3 (2400 dishes per hour)

New design based on research in scores of kitchens. New wash chamber door gives easy access to interior, simplifies tube and scrap tray removal and cleaning. New wash spray distribution system concentrates spray, increases washing efficiency, improves splash control. Requires space only 27" wide by 42" long, table to table. Also with pre-flush.

See our insert (Eb/2) in American School & University Catalog

COLT AUTOSAN

DISHWASHING, SANITIZING, DRYING MACHINES and VEGETABLE PEELERS

Made by the Makers of Famous Colt Handguns, Industrial Packaging Equipment, and Molded Plastic and Fiberglas Products

No appetite...
or no flavor?

IT takes delicious, natural flavors to restore appetites dulled by illness . . . and *Ac'cent restores flavor!*

Why does food flavor have to be restored?

Shipping, storage, waiting on steamtables and trays—all take their toll of flavor. With every delay, the natural protein derivative, glutamate, fades. And it is glutamate that brings out flavor and transmits it to the taste buds.

To assure peak flavor—appetizing flavor—the glutamate must be restored. You can do this *simply by adding Ac'cent* . . . pure monosodium glutamate. Its white, sparkling crystals are your guarantee of purity. It restores the flavor protein derivative, glutamate, but adds no flavor, color or aroma of its own. It not only *intensifies* food flavors, but *holds* the flavor in everything you prepare.

Use Ac'cent to bring out all the fresh, natural, delicious flavor of meats, poultry, fish, vegetables . . . to perk up sauces, gravies, soups, salads.

**An ounce of Ac'cent goes a long way**

**MEATS, FISH, POULTRY**—In frying or broiling, add 1 oz. Ac'cent per 35-45 lbs. of beef, veal, lamb or pork . . . 35-60 lbs. of fish prior to frying or broiling. Ac'cent should also be added to natural juices or gravies. For poultry, sprinkle Ac'cent inside cavities before cooking.

**VEGETABLES**—Add 1 oz. Ac'cent per 40-50 lbs. vegetables. Ac'cent should be sprinkled on when vegetables are seasoned and placed in steam table.

**SOUPS, SALAD DRESSINGS**—Add 1 oz. Ac'cent per 8 gallons of soup, chowder or puree. Broths and consommes require slightly less . . . heavy cream soups a little more. In salad dressings, add 1 oz. Ac'cent in each 2-5 gallons.

**Remember—**
**flavor perks up weakened appetites...**
**and Ac'cent brings out flavor!**

Ac'cent®
PURE MONOSODIUM GLUTAMATE
...builds natural food flavor!

**AMINO PRODUCTS** Division of International Minerals & Chemical Corporation, 20 N. Wacker Drive, Chicago 6, Ill.

**Goiter in Ceylon and Nigeria.** This paper relates the incidence of endemic goiter in Ceylon and Nigeria to diet, to quality of drinking water, and to geologic formation. In the wet areas of Ceylon, where the incidence of enlarged thyroids in school girls is high, the iodine content of drinking waters is low and the usual diet poor. In Nigeria, the distribution of goiter is associated with water supplies of very low iodine content from pre-Cambrian granites.

**Nutrition of the Male Industrial Worker.** This study was made to investigate the relationship between heaviness of work and caloric intake and to develop survey methods for collecting this information among industrial workers. The study of caloric intakes and expenditures was done on 137 men, considered by clinical tests to be in good nutritional condition. The average daily caloric intake of men doing light work was about 600 calories a day less than that of men doing heavy work. The estimated caloric expenditure per minute, excluding what was required for basal metabolism, on an average, was: 2.2 calories for light work, 2.7 calories for light-to-medium work, 2.6 for medium-to-medium-heavy work, and 3.8 for heavy work.

**Serum Cholesterol and Diet.** Diet is known to have a major influence on the concentration of cholesterol in the blood, but there are great differences between species. In contrast to the rabbit and chick, controlled experiments indicate that in man the dietary intake of cholesterol itself is unimportant over a range of possible natural diets, but a rapid and consistent effect is brought about by changes in the total fat intake. This explains the absence of a relationship in surveys in the U. S. between cholesterol intake and serum cholesterol (such experiments are necessarily of limited duration and results may be affected by previous dietary habits). The more persistent, long-range relationships between blood cholesterol and diet can be studied with suitable population samples. Information is available on the serum-cholesterol concentration of young men. At older ages, fewer data are available. Here, clinically healthy men, from forty to fifty-five years old, at Slough, England, were observed and the results compared with those previously obtained for men of the same age in Minnesota and Naples, Italy. The Englishmen subsisted on a diet in which fat contributed 35.4 per cent of the calories; dietary fat provided 40 per cent of the calories for Minnesota men and 20 per cent for the Italians. The mean total cholesterol concentration in the Englishmen was comparable to that in the Minnesota men, but definitely higher than in the Neopolitans. The dietary intake of cholesterol in England was about half that of Minnesota. The combined data show that in healthy young men, the serum cholesterol value is substantially independent of the diet; in middle-aged men on relatively high-fat diets, as in England and the U. S., it is significantly higher than in men on relatively low-fat diets, as in Italy and Spain.

**Energy Intake and Expenditure of Cadets.** The energy expenditure of 77 cadets in a training establishment has been estimated and found to average 3420 calories a day. The supplies issued provided 3714. Of these, the cadets took only 68 per cent. Unused bread accounted for a large part of the discrepancy. The cadets then bought food at the canteen and in restaurants outside which provided them with approximately the same number of calories as the portion of the ration not eaten. It is suggested that a choice of commonplace foods, paid for at the counter and eaten at small tables, would give more pleasure than elaborate meals served at long tables in a large dining hall.

**Protein Deficiency in African Adults.** Adult men suffering from protein-deficiency malnutrition were treated with a high-calorie, high-protein diet. During treatment, their red cell count, serum proteins, serum pseudo-cholinesterase, and protein-bound lipid were studied. At the beginning of treatment, whether or not the patients had clinical evidence of liver damage, they had low levels of serum albumin and elevated levels of globulin. During treatment, the serum albumin (and red cell count) rose. Serum pseudo-cholinesterase was low in such patients and rose as the serum albumin increased. There was less lipid bound to the lipoproteins in persons with malnutrition than in normal subjects.

**Protein Storage in African Adults.** The nitrogen balance of Africans who have lived for a long time on diets very


**SPEED UP YOUR TRAY SERVICE**

**. . . Serve HOT meals *HOT***

**NESTING TRAY-TRUCK . . .**

**a newcomer to the J & J line, offers outstanding advantages in the keep-it-hot service of food from floor diet kitchens, heated tray trucks or subveyor stations.**

**4-TRAY** capacity convenience conserves nursepower. Spilling over of soft foods and liquids is greatly minimized by the unique tri-caster mounting which maintains constant 3-point contact with floor . . . no rocking.

**SAVES VALUABLE FLOOR SPACE**

**Units are of identical size so as to permit nesting of unlimited numbers in any order of sequence. Each additional nested unit adds but 9 inches to the 25-inch overall length of the anchor unit. Five Trucks require but 61 inches of non-duty floor space . . . compare!**

. . . and of course, greater ease of mobility and long service life is assured by the use of superior J & J double ball bearing swivel casters, with 5" ball bearing, rubber tired wheels — the last word in quality construction.

Units are equally practical for routine distribution of medications and sundry supplies, blood and specimen work, milk formula transportation, and other mass deliveries to ward and private room services.

**MODEL 1358** — with 16½ x 24 inch furniture steel shelves, aluminum bronze finish throughout.

**MODEL 1359** — 16½ x 24 inch polished stainless steel shelves, aluminum bronze finished chassis.

**MODEL 1360** — 16½ x 24 inch polished stainless steel shelves welded to stainless steel chassis.

**Visit our Booth at the American Dietetic Ass'n Convention**
**Philadelphia Commercial Museum Booth # 203, Oct. 26–27–28**

**JARVIS & JARVIS, INC.**

PALMER, MASSACHUSETTS

3 JJ 54 BHR

## Recommended recipes for feeding baby

**1. Human Breast Milk:** "the recipe of the most satisfactory food for a baby."

*Gunther, M.: Brit. J. Nutrition 6 (No. 2): 215, 1952.*

**2. SIMILAC®**

so similar to the milk of healthy, well-nourished mothers that there is no closer equivalent.

Similac in the baby's stomach forms a soft, fine, fluid curd assuring rapid and easy digestion. Close equivalence (in quantity and quality of nutrients) to breast milk promotes good growth and reduced incidence of complications during the first year of life.

**Similac is simple to prepare**

Additional information on packaging, prices and ease of preparation may be obtained by writing to

M & R Laboratories, Columbus 16, Ohio

deficient in protein has been observed for long periods. On a diet high in protein and calories they retained nitrogen at rates of up to 10 gm. per day continuously for months. Although they thus appeared to be depositing tissue, their gain in weight did not nearly correspond to the calculated amount of tissue laid down. Possible explanations of this finding are considered. The proportion of nitrogen lost in the feces was considerably greater than that of control subjects. Reasons are given for thinking that the observed nitrogen retention would not have been significantly lower if the cutaneous loss of nitrogen had been measured. The retention of nitrogen was markedly diminished by cortisone and was, therefore, under hormonal control.

## DIABETES

*Vol. 5, March-April, 1954*

*Effect of vegetable fat on hypercholesterolemia and hyperphospholipidemia. L. W. Kinsell, G. D. Michaels, G. C. Cochrane, J. W. Partridge, J. P. Jahn, and H. E. Balch.—p. 113.

**Vegetable Fat and Vascular Disease.** The purpose of this study was to evaluate the effects of diet and of other agents on the serum lipids in diabetic patients and to determine whether any correlation exists between serum lipid changes and the progress of existing vascular disease. Diets containing large amounts of vegetable fat, including considerable quantities of nuts, were fed to fourteen diabetic patients with or without hypercholesterolemia and hyperphospholipidemia. Decreased serum cholesterol levels consistently resulted. A prompt rise occurred when isocaloric amounts of animal fat were substituted. Although evidence is insufficient to show that reducing plasma cholesterol concentration has any effect on atherosclerotic disease, at least no deleterious effect on the disease resulted from the dietary program described.

## FOOD RESEARCH

*Vol. 19, May-June, 1954*

*Palatability and ascorbic acid content of broccoli frozen under different conditions. P. Paul and M. Ferley.—p. 272.

**Palatability and Ascorbic Acid in Frozen Broccoli.** Samples of broccoli were frozen unpackaged, in Cellophane bags, and in Cellophane bags plus cardboard boxes; in still air; and in moving air. Tests were made on the fresh broccoli, one week after freezing, and after 3, 9, and 13 months' storage. The conditions used caused appreciable alteration in the rate of freezing. However, palatability was not affected significantly by freezing rate. Freezing did not improve the texture of the broccoli. Ascorbic acid retention was unaffected by the use of the fan to keep the air in motion during freezing or by the length of storage. However, the ascorbic acid retention decreased slightly as the speed of freezing decreased, due to the addition of packaging material.

## FOOD TECHNOLOGY

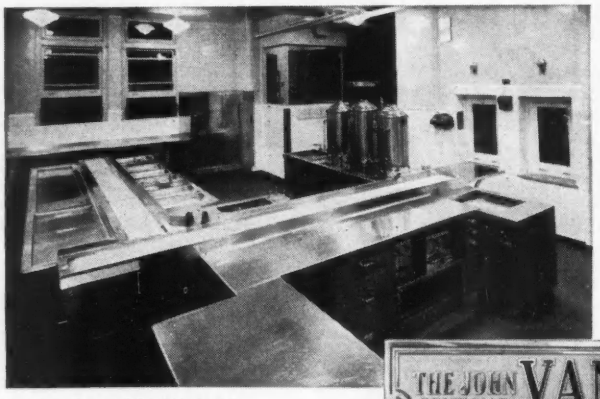
*Vol. 8, July, 1954*

*The role of trace metal contamination in the discoloration of glass packed baby foods. G. E. Livingston, M. A. Solstad, R. J. Vilece, and W. B. Esselen.—p. 313.

*Smoke flavor and ascorbic acid as preservatives for fatty fish. A. M. Erdman, B. M. Watts, and L. C. Ellias.—p. 320.

**Iron Contamination in Glass-Packed Baby Foods.** The effect of trace quantities of metals on the discoloration rates of fruit and vegetable purées has been studied. No evidence of seepage of retort water into commercial glass containers under normal processing conditions could be detected. The analysis of 150 samples of retort water indicated that the levels of iron encountered were too low to constitute a significant source of iron contamination, even if seepage of the water into the jars were to occur.

**Preserving Fatty Fish.** Deterioration in fatty fish preserved either by freezing or by salting is caused mainly by the development of rancidity through oxidation of the highly unsaturated fat. The effect of liquid smoke and ascorbic acid in controlling rancidity in mackerel and mullet was studied. The fish were lightly salted and kept under refrigeration. High concentrations (0.5 per cent) of the liquid smoke gave excellent protection against both rancidity and bacterial spoilage, but produced too strong a smoke flavor and was uneconomical. A smoke concentration of 0.1 per cent still had considerable preservative action and

Kitchen Serving Area
BETHESDA HOSPITAL
Cincinnati 6

Superintendent • LAWRENCE BRETT
Architect • JOHN HARGRAVE

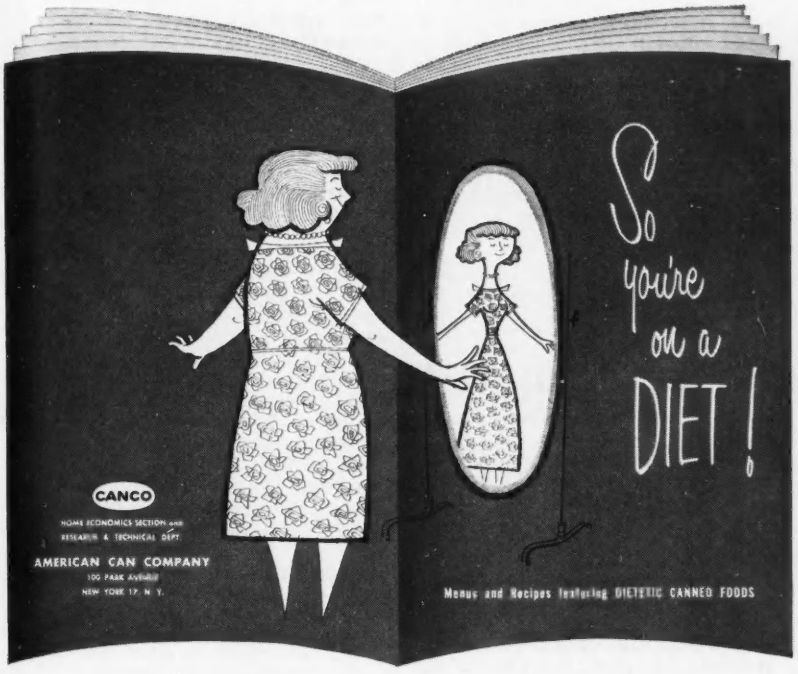
**helping Bethesda Hospital improve service . . . . cut costs**

★ Bethesda Hospital patients have better food service . . . hotter, more attractive food at the bedside . . . since the recent food service reorganization in which Van assisted. Two kitchens were consolidated into one. Centralizing tray service and installing the conveyor effected amazing economy.

★ Superintendent Brett estimates conservatively that *personnel savings have cut overall food service costs 25%!* All new equipment is shining stainless, assuring savings in upkeep for years. It is understandable why Betheda Hospital has been a steady Van customer for more than quarter of a century. In fact, repeat customers have been a Van tradition *for more than a century.*

★ If you have food service equipment needs . . . new, expansion or modernization such as Bethesda's . . . it will pay you to call Van.

**The John Van Range Co.**
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
*Branches in Principal Cities*
341 EGGLESTON AVENUE CINCINNATI 2, OHIO


So you're on a DIET!
CANCO
HOME ECONOMICS SECTION and RESEARCH & TECHNICAL DEPT.
AMERICAN CAN COMPANY
100 PARK AVENUE
NEW YORK 17, N. Y.
Menus and Recipes featuring DIETETIC CANNED FOODS

## A FREE guide to good eating for patients

- On a diabetic diet
- On a low-sodium diet
- On a low-calorie diet

This unique booklet contains a wealth of helpful information for your dieting patients.

The meal patterns have been carefully calculated by hospital dietitians, home economists and members of American Can Company's Research staff.

They tell your patient how to plan interesting, properly balanced meals in accordance with his dietary needs, whether he eats at home, carries a lunch, or orders food in a restaurant. And we've included a listing of many canners who pack foods without added sugar or salt.

Also available . . . a packet of large-quantity recipe cards! These recipes have been developed and tested in the Canco Test Kitchens. They will help you use canned foods to the best advantage in your food service program.

The booklet, the recipe cards and other Canco materials will be on display in our exhibit—Booth 308—at the A.D.A. Convention in Philadelphia. Why not stop by for a visit and order any of the material you may want? If you are not planning to attend the Convention, just fill out and mail the coupon below.

VEGETABLE
CANCO tested
SAVORY GREEN BEANS and TOMATOES
TOTAL COST:
COST PER SERVING:
YIELD: 5 qts.
SERVINGS: 40 (½ cup)
INGREDIENTS
MEASURE
WEIGHT
COST
Bacon, diced..... 8 slices Approx. 6 oz.
Onions, chopped..... 1½ cups 12 oz.
Green beans, drained.... 1 No. 10 can 6 lbs. 5 oz.
Tomatoes..... 1 No. 10 can 6 lbs. 6 oz.
METHOD
1. Fry bacon until crisp and brown.
2. Remove bacon from fat and drain.
3. Fry onions in bacon fat until golden brown.
4. Add green beans, tomatoes and bacon.
5. Season with salt and pepper and heat thoroughly.
FROM THE TEST KITCHENS OF AMERICAN CAN COMPANY 100 PARK AVE., NEW YORK 17, N. Y.

**AMERICAN CAN COMPANY** CANCO
**Home Economics Section**
**100 Park Avenue, New York 17, New York**

**Please send me free of charge:**

☐ **A copy of *So You're On A Diet!***
☐ **A packet of large-quantity recipe cards.**

**Name**_____

**Street**_____

**City**_____ **Zone**_____ **State**_____

## AMERICAN CAN COMPANY CANCO

**New York • Chicago • San Francisco • Hamilton, Canada**

designed especially for your cafeteria requirements

ARROWHEAD, today's leading quality, non-breaking plastic dinnerware, gives you greater savings, greater service!

- Practically indestructible, heavy duty tableware... can save you up to 80% in replacement costs.
- Attractive, graceful styling in beautiful, harmonizing pastel colors.
- Easy to handle, light in weight, easily stacked.
- Sanitary... impervious to boiling water, safe in all dishwashers.
- Complete range of cafeteria items including Arrowhead Cafeteria Trays, Efficiency Ware, Crystalon Tumblers.

Ask for the genuine

ARROWHEAD

Melmac® Plastic Tableware

FIRST because it's FINEST

international molded plastics, inc.
Dept. ADA954, Cleveland 9, Ohio

a mild smoke flavor. Ascorbic acid, when mixed with salt at a concentration of 0.1 per cent of the weight of the fish, did not protect against rancidity. Ascorbic acid in combination with small concentrations of smoke produced a powerful antioxidant.

## JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

*Vol. 2, April 28, 1954*

*Possible relationship between the ionic species of glutamate and flavor. I. S. Fagerson.—p. 474.

*Vol. 2, May 12, 1954*

Changes in physical properties of starch in potato granules during processing. A. L. Potter.—p. 516.

*Studies on deterioration of walnut meats. D. D. Musco and W. V. Cruess.—p. 520.

**Flavor and Monosodium Glutamate.** The flavor-enhancing property of monosodium glutamate is known as a "glutamic effect" or "glutability." It is manifested by a marked persistency of taste sensation, a stimulation of taste receptors, and a "tingling feeling" or a "feeling of satisfaction." The foods in which the flavor effect seems greatest lie in the *p*H range of about 5.0 to 6.5 (foods very slightly acid or chemically neutral). In foods that are on the acid side or somewhat alkaline, more and more of the monosodium glutamate must be used to obtain the flavor effect. Thus, foods high in acid, such as fruits and fruit juices, and sweet baked goods, cooked cereals, some dairy products, and some products containing relatively large percentages of fat do not benefit by the addition of monosodium glutamate. The article contains a method for estimating total glutamate concentration for desired flavor effect above a *p*H value of 4.0.

**Deterioration of Walnut Meats.** About 60,000 to 80,000 tons of walnuts are produced annually in California on the in-shell basis. An increasingly large proportion of the nuts are shelled and packaged in vacuum-sealed cans or in plastic bags. Shelf life is very satisfactory in the canned nuts but relatively short in bags. A study was made of factors affecting flavor deterioration of shelled walnuts. It was found that light-proof packaging is desirable; if air is in contact with the nuts, an effective antioxidant should be used to insure longer shelf life.

## THE JOURNAL OF BIOLOGICAL CHEMISTRY

*Vol. 208, May, 1954*

*Estimation of growth requirements for amino acids by assay of the carcass. H. H. Williams, L. V. Curtin, J. Abraham, J. K. Loosli, and L. A. Maynard.—p. 277.

**Amino Acid Assay for Growth.** The amino acid content of the whole carcasses of the rat, chick, and pig has been determined at different stages of growth as the basis for estimating growth requirements. The pattern of amino acid composition is not only comparable within each species at the different stages of growth, but also similar among the species. It is also observed that the amino acid requirements for growth of the rat, chick, and pig are notably alike.

## THE JOURNAL OF CLINICAL INVESTIGATION

*Vol. 33, June, 1954*

*Bone as a sodium and potassium reservoir. W. H. Bergstrom and W. W. Wallace.—p. 867

**Bone as a Sodium and Potassium Reservoir.** Average normal rat bone contains 152 mEq. sodium and 26 mEq. potassium per kilogram of fresh bone in excess of the amounts accounted for by extra- and intracellular fluid. Rats depleted of sodium and made acidic by intraperitoneal dialysis against ammonium chloride showed, within 48 hr., a decrease of bone sodium amounting to 42 mEq. per kilogram of bone and a decrease in potassium of 11 mEq. per kilogram. Changes in calcium were not proportionately large. Rats raised on a synthetic, sodium-free diet had bone sodium values of 61 mEq. per kilogram below those of controls. No obligatory ratio of either sodium or potassium to calcium was observed.

## THE JOURNAL OF NUTRITION

*Vol. 53, May 10, 1954*

*Dental caries in the cotton rat. XIV. Further studies of caries production by natural diets with especial reference to the role of minerals, fat, and the stage of refinement of cereals. M. A. Constant, H. W. Sievert, P. H. Phillips, and C. A. Elvehjem.—p. 17.

*Dental caries in the cotton rat. XV. The effect of tooth maturity and minerals on caries production by semi-synthetic diets. M. A. Constant, H. W. Sievert, P. H. Phillips, and C. A. Elvehjem.—p. 29.

*The use of *aa'*-dipyridyl for determining the amount of ferrous iron formed in the digestive tract of women before and after the addition of beef to the diet. F. A. Johnston, R. L. Ingalls, and B. O. Muka.—p. 83.

*Basal metabolism of nineteen children from two to ten years old. M. W. Lamb and J. M. Michie.—p. 93.

*The urinary excretion of tryptophan by human subjects on controlled diets varying in levels and sources of protein. E. I. Frazier.—p. 115.

*The effect of carbohydrate-free and carbohydrate-low diets on the incidence of dental caries in white rats. J. H. Shaw.—p. 151.

**Role of Minerals, Fat, and Cereals in Caries.** In this report, data are presented concerning the effect of certain minerals, dietary fat, tooth maturity, and processed cereals on the production of dental caries in the teeth of cotton rats. It was found that calcium carbonate; disodium phosphate; basic mineral mixtures, with and without calcium; and new neutral salt mixtures containing calcium retarded caries development in the erupted tooth. A low-mineral natural diet which produced extensive tooth decay when fed to weanlings was relatively non-cariogenic if fed to older animals. Oily fats were found to give partial protection against tooth decay when substituted for the "natural" fat of cereal-milk diet. Unsteamed oat groats were more cariogenic than whole oats.

**Effect of Tooth Maturity, Minerals, Semi-Synthetic Diets on Caries.** In this experiment on cotton rats, it was found that decreasing the calcium level resulted in increased tooth decay in the erupted tooth. Withholding the cariogenic diets until the teeth were more mature decreased the caries sus-

**Think how surprised your chef would be–**

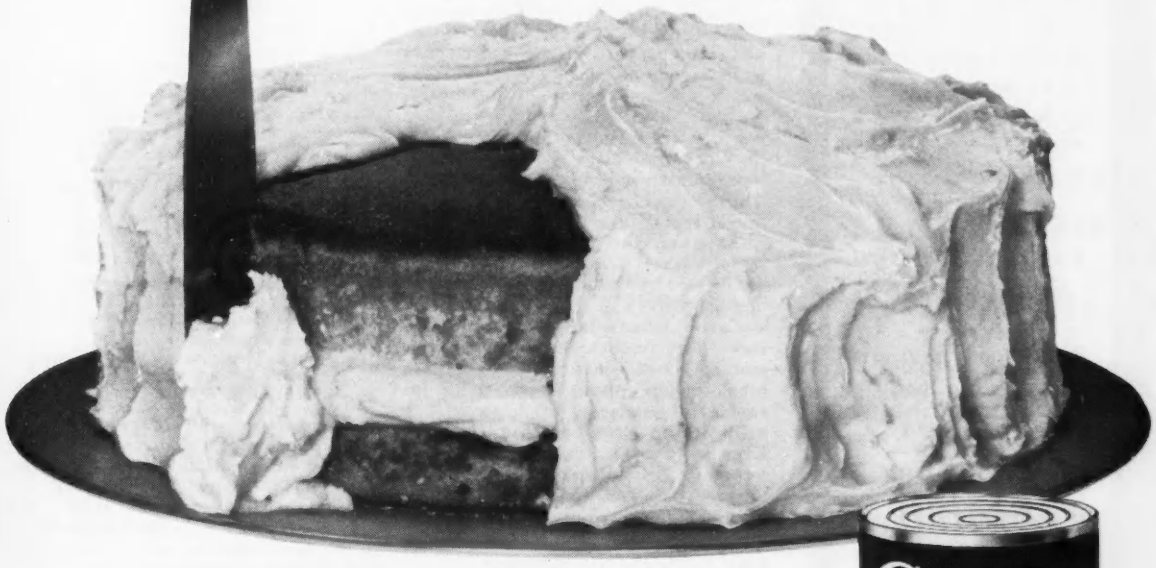
*...if we were to say that Carnation Milk makes better icings than expensive cream!*

## Carnation's special blending qualities make it possible!

A quick look at Carnation will tell you that this double-rich milk has the *heavy consistency* of whipping cream. But what you can't see–and what makes Carnation even better for cake icings than cream–are its *special blending qualities*. Cream doesn't have these qualities... nor does any other form of milk. *And they mean smoother icings every time!*

Carnation's double-richness and special blending qualities improve *most* dishes–and often at a saving in time, money or both. Many fine cooks consider Carnation *the* fine cooking and baking milk. And if your chef needs proof, he'll find an example in the recipe below.

How about giving it to him?



**CARNATION ORANGE ICING**

(Makes icing for 2-8" layers)

**¼ cup *undiluted* Carnation Evaporated Milk**
**2 tablespoons orange juice**
**1 tablespoon grated orange rind**
**¼ teaspoon salt**
**3 cups sifted confectioners' sugar**
**¼ cup softened butter or margarine**

Combine Carnation with orange juice, rind, salt and sugar; blend until smooth. Add softened butter. Beat until creamy and of spreading consistency. Spread between, on sides and top of *cooled* cake layers, over brownies, or cup cakes.

**P.S.** For quantity recipes, write Mary Blake, Carnation Co., Dept. C-94, Los Angeles 36, Calif.

*"from Contented Cows"*

CARNATION PERFORMS COOKING MIRACLES NOT POSSIBLE WITH ANY OTHER FORM OF MILK

*Thank You*

for the privilege of exhibiting our complete line of fine paper table appointments at your convention.

We think you'll be particularly interested in our diet cards and holiday items; we have furnished them with pride to your profession for over a quarter of a century.

We'll try to be of service. Your interest in our place mats, dessert doilies, menu cards menu covers and inserts and, in fact, all manner of paper tray needs will receive prompt attention.

*You're Welcome at Booth No. 526*

*We'll look forward to seeing you*

*Aatell & Jones, Inc.*

3360 FRANKFORD AVE.
PHILADELPHIA 34, PENNA.

*Offices in All Principal Cities*

ceptibility. Acidic inorganic, basic, or acidic organic salt mixtures gave no protection against tooth decay. The type of protein tended to modify the cariogenicity of a low-calcium diet. Increasing the fat 15 per cent did not protect the cariogenicity of a low-mineral synthetic diet.

**Ferrous Iron in the Digestive Tract.** Two women consumed diets low in iron until the iron content of the feces reached a plateau. Then they were given 0.15 gm. *aa'*-dipyridyl orally on each of two days after which they continued on a low-iron diet for two more days. The subjects repeated the same procedure with beef substituted as part of the sugar of the diet. On neither diet did the iron content of the feces rise on the administration of *aa'*-dipyridyl. This indicates that *aa'*-dipyridyl does not combine with ferrous iron in the digestive tract to form an insoluble compound and cannot be used to measure the amount of ferrous iron formed.

**Basal Metabolism of Children.** From eighty-six basal metabolism determinations on nineteen subjects, two to ten years, the results indicate that age alone is an inadequate criterion. Basal metabolism quotients were more uniform with relation to size than to age of the individual. The results are more constant when expressed per unit height than per unit of weight or surface area. These results agree closely with the predicted standard of Talbot and Lewis.

**Human Excretion of Tryptophan.** The amount of "free" and total tryptophan excreted per 24 hr. by twelve young adult women maintained on diets varying in level and sources of protein was studied. There was no apparent relation between the amounts of total "free" and "bound" typtophan excreted and the source or amount of dietary nitrogen. The amount of tryptophan excreted was unrelated to body weight, surface area, basal calories, or urine volume. It did indicate a selective reabsorption of this amino acid by the tubules from the glomerular filtrate.

**Carbohydrate-Low Diets and Caries.** Two carbohydrate-free rations and a low-carbohydrate ration were found under intensive tests to be incapable of producing tooth decay in a highly caries-susceptible strain of rats. Even in trials as long as one and two years after the rats were desalivated to increase the susceptibility to tooth decay, no carious lesions developed.

## THE JOURNAL OF SCHOOL HEALTH

*Vol. 24, June, 1954*

*Evaluation of growth of children. R. L. Jackson and H. G. Kelly.—p. 174.

**Evaluation of Growth of Children.** The authors stress the importance of keeping accurate growth records of children. Nutritional deficiencies would more likely be recognized in their incipiency if an accurate record of the child's growth is kept and appraised. Accuracy is of the utmost importance, for the records are useless if not exact and dependable.

## THE LANCET

*No. 24, June 12, 1954*

*Potassium deficiency in congestive heart-failure. J. H. Cort and H. L. Matthews.—p. 1202.

**Potassium Deficiency in Congestive Heart Failure.** Three patients with congestive heart failure, resistance to mercurial diuretics, and hyponatraemia were submitted to electrolyte balance studies and electrolyte tissue analysis of muscle-biopsy specimens. One patient was treated with a high-potassium intake and the maintenance of digitalization but no mercurials. With potassium therapy, the following changes occurred: the electrolyte and water composition of muscle was completely corrected, edema was decreased, cyanosis disappeared, considerable clinical improvement occurred, hyponatraemia was corrected, and sodium began to be excreted in the urine.

## THE NEW ENGLAND JOURNAL OF MEDICINE

*Vol. 250, June 10, 1954*

*ACTH and cortisone in the treatment of ulcerative colitis. J. M. Elliott and J. E. Giansiracuse.—p. 969.

**Treatment of Ulcerative Colitis with ACTH and Cortisone.** Thirteen patients with ulcerative colitis were given prolonged treatment with ACTH and cortisone. Seven patients required either continuous or repeated treatment to maintain improvement. The long-continued suppressive therapy made possible a return to normal life and gainful occupation in spite of the persistence of low-grade, active disease. This prolonged treatment does not cure ulcerative colitis, and it has not shown that the natural course of the disease is significantly altered by the use.

## NUTRITION

*Vol. 7, Summer, 1954*

Recently introduced insulin preparations. G. R. Fryers.—p. 59.

*Treatment and prevention of kwashiorkor. R. F. A. Dean.—p. 63.

*The growth and development of the dietetic department. A. Buchan.—p. 72.

Food in Barbados. H. V. A. Clarke.—p. 79.

**Treatment and Prevention of Kwashiorkor.** The Medical Research Council studying infantile malnutrition in Uganda, Africa, has reported on kwashiorkor, the disease caused by animal protein deficiencies. Discussions of the diet, treatment and prevention of this disease are made. A plan for improvement of children's diets is being worked out in cooperation with the government departments of Uganda, and it is hoped, through large-scale experiments being carried out on the estates of people employing vast numbers of African families, that a practical plan may be found for country-wide food supplementation.

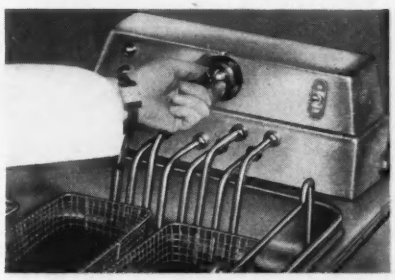
**Dietary Department in the Royal Infirmary, Edinburgh.** An interesting story is told of the growth and development of the Royal Infirmary since its founding 225 years ago with six beds in two rooms. It now has 1300 beds.

*If you follow these simple rules*

# You need never change fat with the

**1** *Fry enough food to absorb and replace 5½ lbs. of fat daily.* With the Mark 313 it takes only 1½ hours of potato frying at capacity to attain this rate of fat turnover!

**2** *Drain and strain fat at least once daily and thoroughly clean the fryer.* Exclusive Mark 313 Miraclean system does these jobs semi-automatically in just 8 minutes flat!



**3** *Always switch off during "slack" periods.* The Mark 313 reheats in 99 seconds after being off over 35 minutes! Remove excess moisture from raw food before frying.

# MARK 313 *Deep-Fat Frying Machine*

## ...and recover your investment in months!

Hotpoint's successor to the fry kettle, the Mark 313 frying machine, has given costly fat a new lease on life by controlling breakdown. You need never change the fat if you follow the above rules.

That way you'll save enough on fat alone to pay for your Mark 313 in a matter of months. You can then pocket further fat savings—worth thousands of dollars—for many years after that!

**20 Year Guarantee**

You'll show important savings, too, on the Mark 313's much longer life, because only Hotpoint gives you full protection against *fry kettle burnout*—the number one source of equipment failure in today's commercial kitchen.

Backed by the most remarkable *Guarantee* ever written for the food-service industry, the Mark 313's twin 28-lb. fat containers are covered against burnout for 20 years.

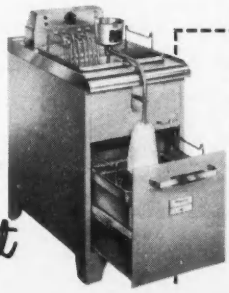
Record production (313 hourly servings of french fries), record 5-minute preheat, and almost unbelievable 8-minute draining and cleaning are all covered in written guarantees, too.

So don't settle for less than the Mark 313—the most wanted commercial kitchen machine in the world!

Hotpoint ALL ELECTRIC

Hotpoint Co. A Division of General Electric Company

Commercial Cooking Equipment



**HOTPOINT CO., Commercial Equipment Dept.**
**225 So. Seeley Ave., Chicago 12, Ill.**

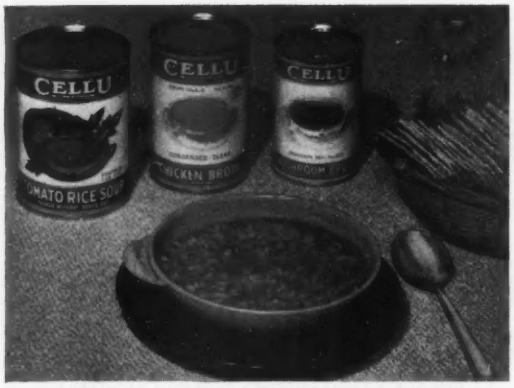
☐ Please rush complete facts on the Mark 313.
☐ Please arrange a demonstration for me.

Name_____

Address_____

City_____ County_____ State_____

*MEALTIME VARIETY For Sodium Restricted Diets*




*CELLU LOW SODIUM SOUPS*

CELLU TOMATO-RICE SOUP—A delicious soup ready to eat—just heat and serve. Made of clear tomato base and generous quantity of rice. No. 2 can.

CELLU CHICKEN BROTH—A condensed clear broth, without added salt or seasonings. Use as a base for many varieties of soups. 14½ oz. can.

CELLU MUSHROOM BROTH—A real taste treat made from cooked, fresh mushrooms without added salt. Just heat and serve. 10½ oz. can.

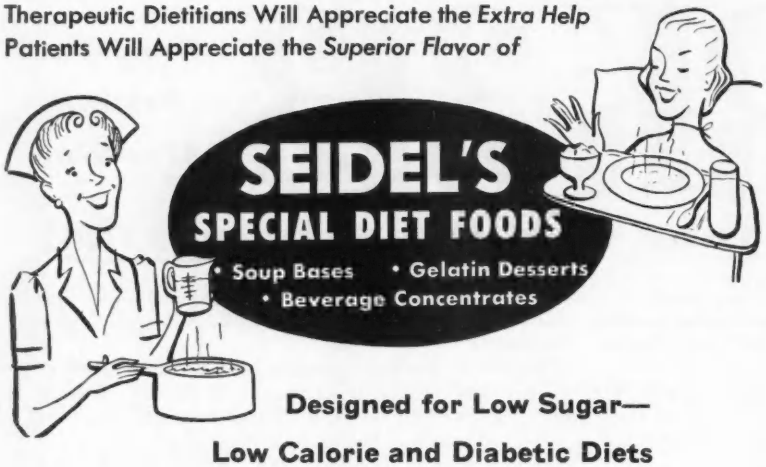
**SOUP STOCK MIX**

**A chicken flavored soup base powder, for institutional use in Sodium Restricted Diets. 1 oz. makes 1 qt. or 5 servings. 16 oz. jar.**

*Send for FREE CATALOGUE*

SODIUM RESTRICTED
**CELLU** *Dietary Foods*
CHICAGO DIETETIC SUPPLY HOUSE *Inc.*
1750 West Van Buren Street Chicago 12, Illinois

**Therapeutic Dietitians Will Appreciate the *Extra Help***
**Patients Will Appreciate the *Superior Flavor of***




**Designed for Low Sugar—**
**Low Calorie and Diabetic Diets**

Developed in consultation with dietitians from many leading hospitals and chemists from Abbott Laboratories—Seidel's Special Diet Foods contain Sucaryl Calcium*, the new sweetening agent that is thirty times sweeter than sugar and *does not have any disagreeable after taste.* Taste panel tests show marked preference by patients for these new special foods over anything presently on the market. Moreover, heating in any degree does not injure their palatability. All products are very simple to prepare for serving and will save much effort. Packed in convenient jars and bottles for use as needed. Copy of Analysis by Independent Laboratory showing low Sodium and other content available on request. Price list and samples on request.

* *Abbott Cyclamate*

AD. SEIDEL & SON INC.
1245 WEST DICKENS AVENUE, CHICAGO 14
FOOD SERVICE
**Quality Food Products since 1890**

The gradual change-over is described from old-fashioned diets, from out-of-date kitchen facilities, and finally the founding of the School of Dietetics, which, up to the present has trained 260 dietitians. Of particular interest are the diets used in the hospital in 1843, and the antics the early dietitians went through in preparing the "liver" diet and the ketogenic diet.

## NUTRITION REVIEWS

*Vol. 12, June, 1954*

*Food attitudes—a part of nutrition education. H. S. Lockhart.—p. 161.

*Squalene, a precursor of cholesterol.—p. 174.

*Mannitol and sorbitol as dietary constituents.—p. 178.

*The influence of magnesium on protein synthesis.—p. 181.

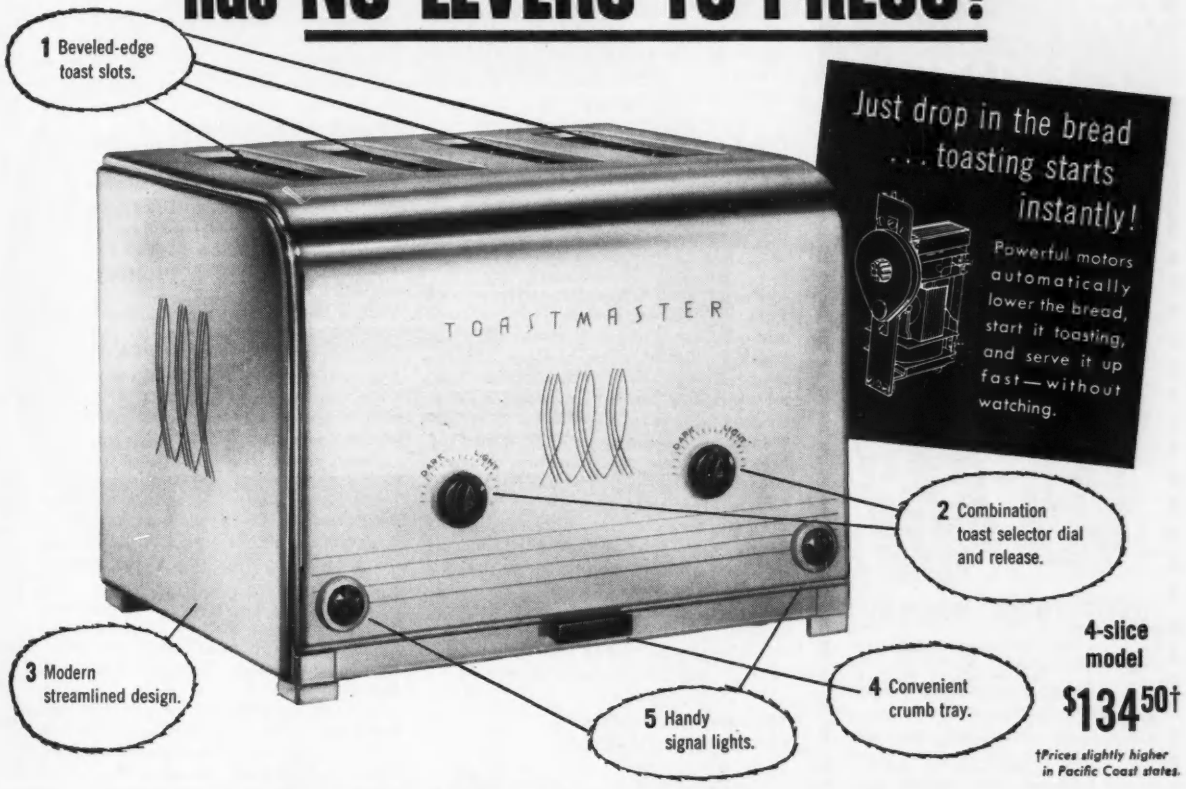
**Food Attitudes in Nutrition Education.** The dominant role that attitudes play in our thought, memory, and learning processes should not be overlooked. For purposes of nutrition education, a food attitude is defined as an inclination to react a certain way toward food and situations involving food. This inclination may be based on an individual's cultural background, experiences, ideas, preconceived notions, convictions, and prejudices about food. Knowledge about attitudes can play an important role in planning nutrition education programs.

**Squalene, Precursor of Cholesterol.** Two groups studied the possible conversion of squalene to cholesterol, using radioactive carbon as a tracer. One group studied the conversion of acetate-$C^{14}$ to cholesterol in liver slices prepared from rats fed a diet containing 1 per cent squalene. The livers from the squalene-fed rats showed a marked depression in their incorporation of the $C^{14}$ into cholesterol but not in incorporation into carbon dioxide. As a result of these findings, certain investigators synthesized $C^{14}$-labeled squalene. When this was administered to rats, no incorporation into cholesterol could be detected. Meanwhile, however, another group reported that the $C^{14}$ of biologically prepared $C^{14}$-squalene was incorporated into cholesterol *in vivo*. Squalene is probably an intermediary in the biosynthesis of cholesterol.

**Mannitol and Sorbitol as Dietary Constituents.** The availability of the sugar alcohols, mannitol and sorbitol, has stimulated interest in their nutritional use as substitutes for sugar in diabetic diets. In the diabetic individual, administration of sorbitol probably would increase the insulin requirement, but not to the same extent as glucose. Although small doses of sorbitol are well tolerated, amounts greater than 50 gm. are laxative. A secure place for sorbitol in diabetic diets remains to be established. The report states that "mannitol is absorbed so slowly and to such a slight degree that it does not affect the blood sugar or respiratory quotient of man." Its use in diabetic diets is not promising because diarrhea appears after doses of 10 to 20 gm. The difference in metabolism of mannitol when administered by mouth and by intraperitoneal injection could

**Now! Make perfect toast with the least effort!**

# *The All-New*
# TOASTMASTER POWERMATIC TOASTER
# has NO LEVERS TO PRESS!

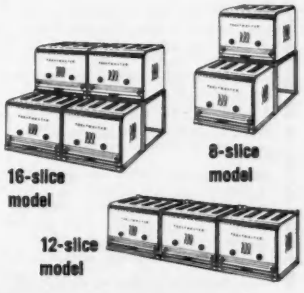

1 Beveled-edge toast slots.
Just drop in the bread . . . toasting starts instantly!
Powerful motors automatically lower the bread, start it toasting, and serve it up fast—without watching.
TOASTMASTER
2 Combination toast selector dial and release.
3 Modern streamlined design.
4 Convenient crumb tray.
5 Handy signal lights.

**4-slice model**
**$134.50†**
*†Prices slightly higher in Pacific Coast states.*

## Just look at all of these Time- and Money-Saving Features!

- ✓ New "Toastmaster"* Powermatic Toaster makes every slice perfect. Serves it up uniformly crisp, golden-brown, appetizing, and delicious.
- ✓ New flexible timer automatically compensates for normal voltage fluctuations.
- ✓ Reduces current waste. Uses current only while toasting and only in slots that are actually in use.
- ✓ Flexibility for the future. Larger models—8-, 12-, or 16-slice—are composed of add-on 4-slice units.

1. Beveled-edge toast slots provide for fast and easy loading of bread.
2. Combination toast selector dial and release allow choice of perfect toast that's light, dark, or in-between.
3. Modern streamlined design. Durable finish of nickel and chromium will stay bright for years.
4. Convenient crumb tray slides out easily for cleaning, without moving toaster.
5. Handy signal lights on either side show when either 2-slot section is in operation.




**NOTE: VISIT-YOUR-DEALER WEEK** is September 20-25. It's "open house," so stop in and get acquainted!

# TOASTMASTER
## POWERMATIC TOASTERS

*"Toastmaster" is a registered trademark of McGraw Electric Company, makers of "Toastmaster" Toasters, "Toastmaster" Waffle Bakers, "Toastmaster" Hot-Food Servers, and other "Toastmaster" Products. Copr. 1954. Toastmaster Products Division, McGraw Electric Company, Elgin, Illinois.

Have you any HOT FOODS to move today!
PORTABLE
AERVOID
REG. U.S. PAT. OFF.
Vacuum Insulated
HOT FOOD, SOUP and COFFEE CARRIERS
BEGIN WHERE COOKING KETTLES AND COFFEE URNS LEAVE OFF

**INSTITUTIONS - HOSPITALS**

When you have hot foods, hot soup, hot coffee to be serviced a distance from your kitchens . . . THAT'S WHERE PORTABLE AerVoiD VACUUM INSULATED HOT FOOD AND LIQUID CARRIERS COME IN.

AerVoiDs begin where cooking kettles and coffee urns, leave off. They provide a means by which the output of stationary cooking equipment can readily be transported and serviced at points distant from your kitchens . . . expediting service, saving time, money, labor.

AerVoiDs cost but a fraction of the cost of urns, steam tables, cooking kettles. Made of stainless steel, sanitary, high vacuum insulation (exclusive with AerVoiDs) that insures thermal efficiency to keep foods hot for servicing even miles from a central kitchen and with high retention of all the essential food elements and flavors as demonstrated by laboratory tests.

Not being anchored to one location, portable AerVoiDs open up immense new possibilities in expediting mass feeding. The only "complete line" of portable hot food servicing equipment on the market . . . sizes and types to feed thousands or just a few.

Experienced mass feeding consultants to help you without cost.

Write for illustrated price list JD-54 Compare. See how much less portable AerVoiDs cost . . . how much you can save.

**VACUUM CAN COMPANY**
19 SOUTH HOYNE AVENUE
CHICAGO 12, ILLINOIS


be attributed to either of two possibilities, which are discussed.

**Influence of Magnesium on Protein Synthesis.** It has become increasingly apparent that in order to achieve net protein synthesis, more is needed than the proper mixture of amino acids. In the experiments described in this paper, a gain in weight is assumed to be due to protein synthesis. It would appear that the restriction of magnesium intake produces almost as great a failure of protein synthesis as does a restriction in potassium intake. The effect of nitrogen intake on magnesium requirement for protein synthesis was studied. The author states that it is apparent that the gain in weight on a magnesium-deficient ration is almost twice as great with a low-protein intake as compared to a moderate-protein intake.

## QUARTERLY BULLETIN OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

*Vol. 28, Summer, 1954*

*Parenteral administration of fats. S. Freeman.—p. 113.

**Parenteral Administration of Fats.** The general subject of parenteral administration of fat is reviewed. Fine, stable emulsions of fat have been intravenously injected into animals and human subjects. The fat contained in these emulsions is largely removed from the circulation within 3 or 4 hr. following injection. These emulsions may provoke a variety of abnormal reactions, or no adverse reactions whatsoever. Limitations in the present understanding of bodily mechanisms concerned in fat transport impair the progress of attempts to arrive at a suitable fat emulsion for parenteral use. The parenteral administration of fat is not yet perfected to the extent of being generally applicable to undernourished individuals.

## THE ROYAL SANITARY INSTITUTE JOURNAL

*Vol. 74, June, 1954*

*Bacteriological examination of food. P. B. Crone.—p. 379.

**Bacteriologic Examination of Food.** Only a few organisms are definitely known to cause disease on being ingested with food and drink. Food under suspicion and material from patients in outbreaks of food poisoning should be examined. In many cases more delicate tests have been worked out for the routine testing of unsuspected foods.

## SCIENCE

*Vol. 119, June 11, 1954*

*Abnormal lipid in coronary arteries and aortic sclerosis in young rats fed a choline-deficient diet. G. F. Wilgrem, W. S. Hartroft, and C. H. Best.—p. 842.

**Choline-Deficient Diets.** Studies using rats indicate that an adequate intake of choline favors the maintenance of not only a healthy liver and kidney but also a normal cardiovascular system.

## AMERICAN RESTAURANT MAGAZINE

*Vol. 38, July, 1954*

*More "cream" from increased sales of milk.—p. 46.
*There's profit sandwiched between bread. L. D. Freeman.—p. 66.
Recipes from America's test kitchens.—p. 70.
*Dream dishes for land o'Nod crowd.—p. 83.
*Ideas for ideal employee relations. J. B. O'Meara.—p. 88.

**Milk Sales Increased.** Since milk dispensers have been officially authorized for restaurant use in all but a few limited areas, it is now possible to provide a refreshing, really cold product that customers like. Amazing increases in milk sales (ranging from 26 to 100 per cent) have been reported in commercial and industrial food service operations, as well as in schools. The advantages of milk dispensers and aggressive merchandising methods are described.

**Profit Sandwiched between Bread.** The merchandising of combination items during the summer months, such as soup and sandwiches, or salad and sandwiches, produces more profit. A good selection of breads lending variety to the choice of sandwiches would include white, rye, whole wheat, brown bread, pumpernickel, French loaves, raisin, date, orange, nut banana, apricot, finger rolls, sandwich buns, rolls in variety, English muffins, and split biscuits. Many soup and sandwich combinations are suggested along with a recipe for cheese-ham rolls and chickenette sandwich filling.

**Ice Cream Dishes.** Many imaginative, eye-catching, concoctions of ice cream and cookies can be developed which can be good profit-builders for any food service operation. Instructions and pictures are given for the zoo parade, heart breaker, and circus clown.

**Ideal Employee Relations.** Twenty-nine ideas that help to build better employee relations in a restaurant in Kansas City, Missouri, are listed. Bonuses, awards, and gifts of many types and for a number of occasions are included, along with such items as free telephone for employees, a loan association, and annual parties. Particular emphasis is placed on frequent employee meetings and classes scheduled during working hours. These meetings involve only a few individuals at one time, are only 15 min. in length, and are planned and scheduled carefully in advance. The procedure for handling the meetings is explained.

## FOOD ENGINEERING

*Vol. 26, June, 1954*

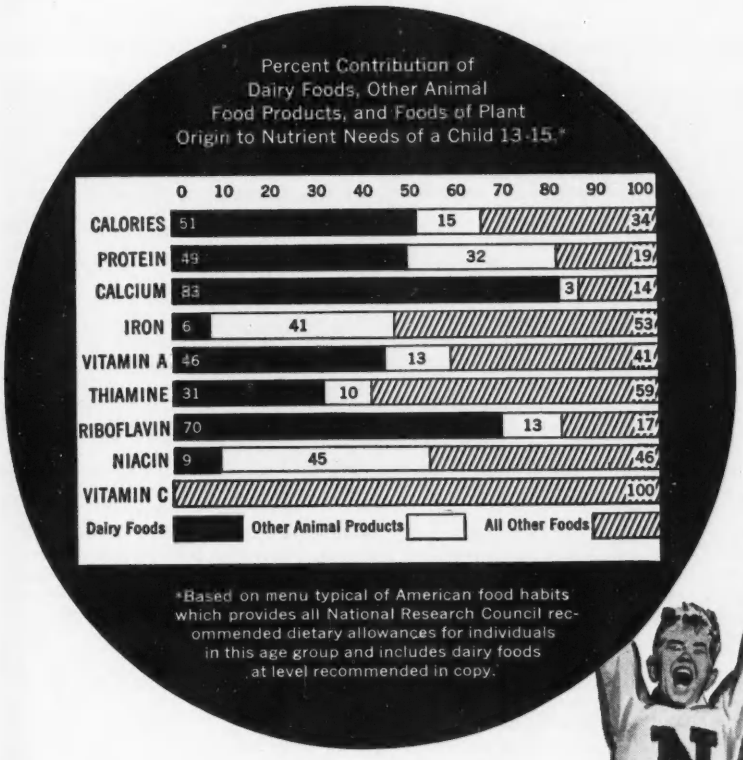
Lime juice superconcentrates. O. W. Bissett, M. K. Veldhuis, and W. C. Scott.—p. 56.
*Chemicals in foods. Where do they stand? B. L. Oser.—p. 70.
*Expanding uses of antioxidants. A. L. Tappel.—p. 73.
*Monosodium glutamate.—p. 76.
Sugar types and uses. D. Quinlan.—p. 85.
*Low-calorie ingredients—big booster of dietetic foods. K. M. Beck.—p. 87.
Nutrition research highlights role of ingredients. C. G. King and H. L. Sipple.—p. 99.

*Vol. 26, July, 1954*

*Powder makes A-1 apple juice. H. I. Sinnamon, V. A. Turkot, R. K. Eskew, and G. W. M. Phillips.—p. 78.

*...tailored to the needs of the*

# HUNGRY TEENS!


Percent Contribution of
Dairy Foods, Other Animal
Food Products, and Foods of Plant
Origin to Nutrient Needs of a Child 13-15.*
0 10 20 30 40 50 60 70 80 90 100
CALORIES 51 15 34
PROTEIN 49 32 19
CALCIUM 83 3 14
IRON 6 41 53
VITAMIN A 46 13 41
THIAMINE 31 10 59
RIBOFLAVIN 70 13 17
NIACIN 9 45 46
VITAMIN C 100
Dairy Foods
Other Animal Products
All Other Foods
*Based on menu typical of American food habits which provides all National Research Council recommended dietary allowances for individuals in this age group and includes dairy foods at level recommended in copy.

Just giving the hungry teen-ager *enough* food to satisfy his or her appetite won't necessarily satisfy nutritional needs as well—the diet must supply all the nutrients required for this period of rapid development.

Greater independence in choice of foods begins at this age. Emotional changes occur. Physical growth is rapid, and activity is intensified. Faulty food fads and poor eating habits should be guarded against.

Physical growth of the adolescent means rapid growth of the long bones with greatly increased storage of *calcium* and other minerals.[1] The amount of protein deposited in muscle and other soft tissues is also increased.

Growth always requires energy, most economically supplied by *fat* and *carbohydrate*. Minerals and vitamins are essential to the utilization of energy and to the growth processes. For instance, *thiamine* is essential to metabolism of carbohydrates . . . *vitamin D* is essential to normal calcification of bone.

The chart shows how the protective foods can be combined to meet the nutritional needs of teen-age growth. Dairy foods are our best source of calcium and riboflavin . . . provide generous quantities of high quality protein . . . contribute fat and carbohydrate in a form not available from other foods . . . supply important quantities of pre-formed *vitamin A* and of thiamine . . . and other essential nutrients as well.

*One to one and one-half quarts of milk, or its equivalent in other dairy foods—cheese, ice cream and butter—are recommended for inclusion in the daily diet of the rapidly growing teen-ager.*

[1]Stearns, G. The human requirement of calcium, phosphorus, and magnesium. J. Am. Med. Assn. *142*:478, (Feb.) 1950.

The presence of this seal indicates that all nutrition statements in the advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

**NATIONAL DAIRY COUNCIL**

111 NORTH CANAL STREET • CHICAGO 6, ILLINOIS

*Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.*

NEW
**flavor lift for LOW-SODIUM DIETS**

**Adolph's SALT SUBSTITUTE**

Low sodium foods can now have all the tang of salt seasoning. Adolph's, only product containing MONO POTASSIUM GLUTAMATE, flavors—tastes—sprinkles like salt.

**MAKES ALL MEAT MORE TENDER**

Regardless of cut or grade, Adolph's guarantees tenderness, less shrinkage—cooking time, and improves flavor. Reduce meat budget by changing cooking methods of less expensive cuts.

**Adolph's MEAT TENDERIZER**

For FREE SAMPLES write: Dept. DA
ADOLPH'S FOOD PRODUCTS, L.A. 46, Calif.

EATING IS FUN—
for
Older People, Too

*Designed to Aid Proprietors of Small Nursing Homes and Residences.* Also *Adaptable to Home Kitchens*

This attractive booklet is a guide to better food and food service in the small institution.

Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving.

This is a project of the Diet Therapy Section of The American Dietetic Association.

*Single copy 50¢*

Five copies..... $2.00
Ten copies..... 3.75

**Order from:**

**THE AMERICAN DIETETIC ASSOCIATION**

**620 North Michigan Avenue**
**Chicago 11, Illinois**

•Rapid headway of canned pop. R. S. Kleinschmidt. —p. 84.
•"Canned-handy" baked goods. F E Staff.—p. 123.

**Chemicals in Foods.** Sensational and misleading information printed recently has caused apprehension over the safety of the public food supply. The voluntary withdrawal of coumarin and expected ban on certain coal-tar dyes indicate a further investigation into aromatic compounds, synthetic sweeteners, and thickeners. Efforts are under way with a view toward developing a formula acceptable to both the chemical and food industries as well as the federal Food and Drug Administration.

**Expanding Uses of Antioxidants.** One of the biggest problems in the preservation of fats and fatty foods is rancidity caused by oxidation of unsaturated fats, which produces undesirable tastes and odors. Reduction of oxygen by airtight containers can solve many oxidative problems. Lowering temperatures and light intensity by using opaque packages can help prevent oxidative rancidity. The effect of various types of antioxidants on foods is discussed.

**Monosodium Glutamate.** This unusual flavor enhancer, when used in small amounts, brings out natural flavor of foods, leaves no flavor of its own, and at the same time suppresses undesirable notes. It is effective in keeping the flavor of processed foods when a time lapse occurs between preparation and eating. Canned goods containing it are more tasty, and overcooked flavor found in food kept hot on a steam table can be eliminated by its use. A table is included listing the foods to which glutamate can be added, and in what quantities.

**Booster of Dietetic Foods.** Synthetic sweeteners, such as saccharin and Sucaryl, provide sweetness without adding calories and are non-nutritive. These agents, added to canned fruits, jams, jellies, soft drinks, and frozen and unfrozen desserts, add greatly to the variety and palatability of the low-calorie diets of 2 to 5 million diabetic patients and 25 to 30 million people in the U.S. for whom overweight is a problem. In some states, regulations prohibit the use of all synthetic sweeteners or specifically ban the use of saccharin, but reports of the Food and Drug Administration's pharmacologists that Sucaryl does not compete economically with sugar, and, therefore, cannot be used as an adulterant to cheapen manufacturing costs of standard foods and beverages, is resulting in many states lifting this ban.

**Apple Juice from Powder.** A powdered apple juice, developed by the U.S. Department of Agriculture, can be reconstituted in cold water within 90 seconds and yields a beverage of excellent fresh fruit flavor. Formulas of the three powders tested are given with the results of these tests.

**Canned Soft Drinks.** Canned carbonated beverages are a mushrooming development in the beverage industry, with present facilities turning out 30,000 cases daily, and new plants under construction. The transition from bottles to cans is sound and logical since it eliminates the problem of refunding deposits and handling returned "empties." A new plant is described, giving details of necessary equipment, the filling operation, and a description of the finished product.

**Baked Goods in Cans.** Because baked goods can now be vacuum-sealed in cans, the housewife has a convenient product, constantly fresh on her shelf, until needed. Special formulas are used, since bread doughs, prepared according to regular standards are unacceptable. The many difficulties involved in canning baked goods and the manner in which they were resolved are discussed.

## HOSPITALS

*Vol. 28, July, 1954*
•Use of ambulatory dining rooms. J. Ruthberg and D. B. Thompson.—p. 100.

**Dining Rooms for Ambulatory Patients.** This article deals with the problems of feeding ambulatory patients, both from the doctor's and dietitian's viewpoints. According to the doctor, early ambulation is psychologically good for the patient. This changed concept of post-operative care has resulted in almost immediate ambulation of the patient, and the need for more sitting room space, more sanitary facilities, and a larger area for diversional activities. The problem then arises of changing methods of feeding patients. The dietitian knows there is better use of dietary personnel and less food waste connected with the use of dining rooms for ambulatory patients. Since the patients for whom modified diets are prescribed enter the same cafeteria line with patients on a normal diet, they gain, with the help of the dietitian, experience in selection of proper foods—a problem they must face in public cafeterias after discharge from the hospital.

## HOTEL MONTHLY

*Vol. 62, July, 1954*
•How fast is your food service.—p. 47.

**Modern Production Ideas in Food Service.** Many factors must be considered when modernizing existing food facilities, to bring about the desired advantages of minimum personnel, minimum maintenance, and minimum effort. This article reveals how the management of a hotel in Charleston, South Carolina, solved the problem by using the modern production idea.

## INSTITUTIONAL FEEDING AND HOUSING

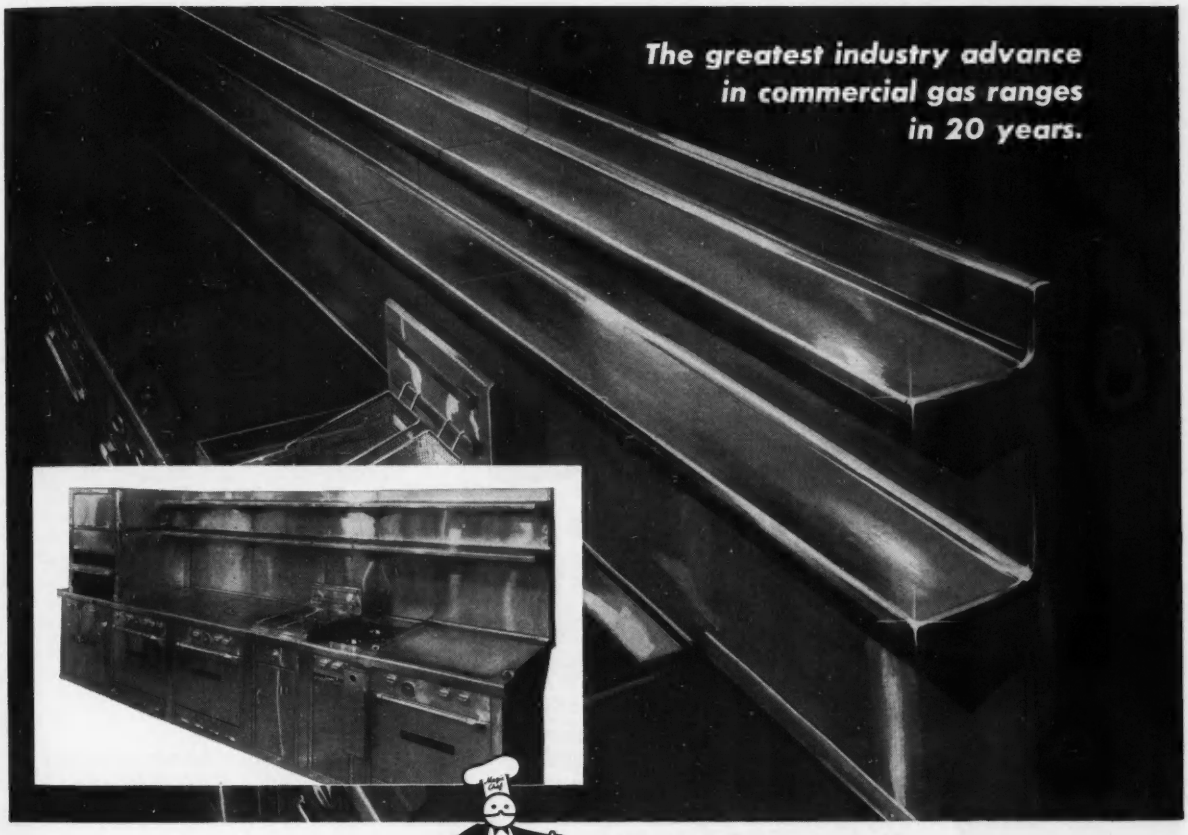
*Vol. 3, July, 1954*
•Planned promotion sells for Holly's.—p. 5FH.
Plan for sandwich month now. T. Baum.—p. 6FH.
•Now institutions and restaurants can use improved dried egg powders. R. C. Hockett.—p. 10FH.

**Planned Promotion.** The owner of seven general service restaurants in western Michigan spends about 1½ per cent of his gross income on advertising in all available mediums, but stresses the importance of a clean attractive, colorful menu with well phrased copy. He believes the use of full-color photographs of house specialties on the menu cover

# *Magic Chef New "Super-Duty" line*

# proves leadership again

**with features, styling, value that challenge comparison!**




**Magic Chef**
**"SUPER DUTY"**
**GAS COMMERCIAL COOKING EQUIPMENT**

Get more *Performance Economy Profit*
Buy now during the nationwide "PEP" commercial Gas Sales Campaign.
*See your food service equipment dealer or write*
**MAGIC CHEF, INC. • ST. LOUIS 10, MO.**

- **New "flow-line" shelf**
  Streamlined continuous storage surface unbroken by dividers or end brackets. Easy to clean coved back edges on both top and bottom shelves. Increases efficiency, gives at least 25% more usable shelf area.
- **New one piece fry top**
  Extra frying capacity for rush hour peaks. Eliminates hot grease seepage under fry top. Drains empties into convenient grease receptacle on front of range. More sanitary, saves cleaning time.
- **New flush-to-floor design**
  AGA approved for installation without legs on non fire-proof floors. Easier to keep clean. Modern streamlined appearance.
- **New top burner valves**
  All top burner valves on all ranges are new simmer-set type. Any burner adjusts down to simmer without peeking. A time saver, fuel saver, and safety feature. New firm-grip valve handles.
- **New all porcelain enamel linings**
  *Top burner box, oven burner box* and oven linings are completely porcelain enameled for a life time of service and sanitary quick cleaning.

does much to increase sales. The effectiveness of his promotion ideas is proved by the success of a new 125-seat restaurant which has averaged 900 customers a day since it opened only three months ago.

**Dried Egg Powders for Institutions and Restaurants.** With the enormously improved quality of dried egg powders, scrambled eggs prepared from this powder are practically indistinguishable from fresh eggs, even after six months' storage at 100°F. War-time dried eggs are unhappy memories to many service men, who, after a week of such eggs, had difficulty in swallowing them. The trace of glucose, which always occurs in eggs, was found to be the root of the trouble. Glucose is now removed to solve the problem. One method of doing this is to add yeast and let this convert the glucose into alcohol which is then evaporated during the drying process. The new improved egg powders seem likely to meet all requirements of the military.

## INSTITUTIONS MAGAZINE

*Vol. 35, July, 1954*

*How to buy, serve beef, fresh vegetables.—p. 8.

*Seek solutions for problems of pilferage.—p. 22.

*Treat meat, fowl for increased tenderness, decreased cooking time.—p. 34.

*Salad specialties—p. 38.

*Foreign flavors added to menus for meal variety.—p. 139.

**Handling Fresh Vegetables and Beef.** Hints are given on the handling, storage, and cooking of fresh vegetables, including lettuce, string beans, and beets. Directions for cutting and preparation of beef cuts are included also.

**Pilferage.** A detective answers questions concerning customer thieving, avoiding law suits, and what makes a thief. It is suggested that keeping the stock of supplies low and having good inventory control will discourage pilferage. Another idea is to bond employees and explain to them what the bonding implies.

**Tenderizing Meat and Fowl.** Instructions for using "papain," the natural vegetable enzyme derived from the papaya, for tenderizing meat are given. The tenderizing action ceases at cooking temperature. The tenderizer has been demonstrated to reduce cooking time as much as 30 per cent, resulting in much less shrinkage. A 1-lb. jar, available for institution food service, will tenderize 224 lb. meat or fowl at a cost of less than a cent a pound.

**Salad Specialties.** Two outstanding food service establishments in Peoria say their salads and dressings do as much to build volume as the thick slices of roast beef served. Recipes are given for a molded pineapple salad, a pineapple gondola filled with lobster, and Roquefort and Thousand Island dressings. Pictures are included of steps in preparation and of the finished salads.

**Meal Variety with Foreign Flavors.** Aroused interest and increased patronage will result when meals are developed around the national dishes of foreign countries. Music characteristic of the country whose national dishes are featured will add to patron interest. If the foreign menus are popular, an international menu may be planned for one day each week.

## THE MODERN HOSPITAL

*Vol. 83, July, 1954*

*Take your troubles to a consultant. M. Dykes.—p. 114.

*Peaches rate an A—as in provitamin A and ascorbic acid. I. L. Dolan.—p. 118.

**The Dietary Consultant.** The salary offered in small hospitals is usually low, thus attracting a limited number of qualified dietitians. In such cases, the services of a dietary consultant are of great value, since she is trained to be dietitian, architect, diplomat, engineer, accountant, food service director, cook, and kitchen helper. The duties of the dietary consultant for the smaller hospitals in Georgia, who is an active member of The American Dietetic Association, are given.

**Peaches for Eating Pleasure.** The cultivation of peaches has been traced as far back as the tenth century B.C. The first successful preservation of the fruit took place in France about 1810. Peach growers are now producing four varieties of cling peaches ideal for canning. Many appetizing combinations using peaches are listed, including suggestions for cocktails, meat garnishes, salads, and desserts.

by all means..
Just set it and forget it!
"STEAM-IT"
*Operates at 15 lbs. pressure.
here's what you can do with
STEAM PRESSURE* COOKING...
TURKEY — "STEAM-IT" will cook a 30 lb. turkey automatically in 45 to 60 minutes with the fuel on only about 15 minutes in the 45-minute cooking cycle. No basting required. Ideal texture . . . moist, tender, flavorful. This method saves 2-3 hours over the old-fashioned way.
HAM or CORNED BEEF — Shrinkage, and the long cooking time required, are always a problem in the preparation of corned beef and ham. "STEAM-IT" and save 20% on shrinkage, 50% on cooking time. Cook 36 pounds of corned beef in 60 minutes; 48 pounds of ham in 45 to 60 minutes.
VEGETABLES — Asparagus . . . 30 pounds in 3 to 5 minutes. Green beans in 2 to 4 minutes! Corn-on-the-cob, onions, spinach, parsnips — the full flavor and color is retained, vitamin content is held to its highest possible point.
SEA FOOD — Ideal for sea foods, "STEAM-IT" will cook 20 pound-and-a-half lobsters in 10 minutes! Steam a half-bushel of clams in 4 minutes! 36 pounds of fillets, pre-cooked for frying or broiling in 6 minutes!
Model 3M Direct Connected. Also Available in Two-Compartment Size for Gas or Electric Operation.
COOK WITH A "STEAM-IT" PRESSURE COOKER FOR SPEED, FLAVOR, ECONOMY
Write Dept. K
Market Forge Company
Food Service Division
EVERETT 49 MASSACHUSETTS

SOLVING THE PROBLEM OF COMBINING

# Quality AND Economy!

STANDARD BRANDS products are made, first of all, to satisfy the highest standards of quality. But, particularly in institutional feeding, quality alone is not enough—the problem of low-cost food is often of crucial importance.

You'll find that you can satisfy your requirements of *both* quality and economy by using the Standard Brands products shown here and by following Standard Brands recipe suggestions. Thousands of institutional kitchens are using this procedure to solve the problem of providing high-quality nutrition on a limited food budget.

For full information on Standard Brands products and service, call your local Standard Brands office—you'll find it listed in your telephone directory—or write to Institutional Division, Standard Brands Incorporated, 595 Madison Avenue, New York 22, N. Y.

*INSTITUTIONAL DIVISION*

**STANDARD BRANDS INCORPORATED**

***Roasters of Chase & Sanborn Fancy Mark Coffee***

## TENTATIVE PROGRAM, 37TH ANNUAL MEETING, THE AMERICAN DIETETIC ASSOCIATION, COMMERCIAL MUSEUM, PHILADELPHIA PENNSYLVANIA

### OCTOBER 26–29, 1954

**All meetings, unless otherwise specified, will be held at the Commercial Museum, October 26–28.**

*Friday, October 22*

5:00–8:00 p.m.—REGISTRATION, The Benjamin Franklin Hotel

*Saturday, October 23*

9:00 a.m.–5:00 p.m.—REGISTRATION, The Benjamin Franklin Hotel

9:30 a.m. / 1:30 p.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, The Benjamin Franklin Hotel

*Sunday, October 24*

1:00–8:00 p.m.—REGISTRATION, The Benjamin Franklin Hotel

1:30 p.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, The Benjamin Franklin Hotel

*Monday, October 25*

8:30 a.m.–8:00 p.m.—REGISTRATION, The Benjamin Franklin Hotel

8:30 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, The Benjamin Franklin Hotel

9:00 a.m.—MEETING OF THE HOUSE OF DELEGATES, The Benjamin Franklin Hotel (members of the Association are urged to audit this meeting)

12:00 noon—LUNCHEON, The Benjamin Franklin Hotel (members of the House of Delegates and Alternate Delegates only)

1:30 p.m.—MEETING OF THE HOUSE OF DELEGATES, The Benjamin Franklin Hotel

5:30–7:30 p.m.—WELCOMING BUFFET (by reservation only), The Benjamin Franklin Hotel

8:15 p.m.—MEETING OF OFFICERS, SECTION CHAIRMEN, AND DELEGATES OF STATE DIETETIC ASSOCIATIONS, The Benjamin Franklin Hotel

*Tuesday, October 26*

8:00 a.m.—BREAKFAST MEETING, HISTORY OF OUR ASSOCIATION (by reservation only), The Benjamin Franklin Hotel

8:15 a.m.—CONFERENCES AND DISCUSSION PERIODS (repeated Tuesday through Friday—limited attendance), The Benjamin Franklin Hotel

*Community Nutrition*—Combating Food Misinformation, Community Needs of Nutrition

*Diet Therapy*—Standardizing Therapeutic Diets, Therapeutic Selective Menus

*Food Administration*—Equipment and Layout, Menu Planning and Food Production, Personnel Management

*Professional Education*—Pretesting, Workshop on Nutrition Teaching for Student Nurses, Objective-Type Examination Questions

9:30 a.m.—REGISTRATION AND EXHIBITS, Commercial Museum

10:30 a.m.—OPENING SESSION

Invocation—Rt. Rev. Msgr. Joseph G. Cox, Rector, Church of St. John the Evangelist, Philadelphia

Introduction of Officers

Strive and Thrive—Amalie K. Nelson, Ph.D., Columbus, Ohio

1:45 p.m.—CONVEYING YOUR IDEAS

Are You an Executive?—Anthony J. Rourke, M.D., Consultant in Hospital and Medical School Administration and Construction, New Rochelle, New York

Together We Work—Samuel Wishik, M.D., Graduate School of Public Health, University of Pittsburgh

How Do You Say It? (*speaker to be announced*)

1:45 p.m.—NUTRITION FRONTS

Nutrition Research and the Practice of Dietetics—Robert E. Olson, M.D., Ph.D., Professor and Head, Department of Biochemistry and Nutrition, University of Pittsburgh

Attitudes toward Nutritive Additives—Leonard A. Maynard, Ph.D., D.Sc., Professor of Biochemistry and Nutrition, Cornell University, Ithaca

Alcoholism and Nutrition—Olaf Mickelsen, Ph.D., Assistant Chief, Laboratory of Biochemistry and Nutrition, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda

3:30 p.m.—BUSINESS MEETING OF MEMBERS OF THE AMERICAN DIETETIC ASSOCIATION

*Highlights:*

Growth and Development of Our Association

Award for Essay Contest on Supervision

8:00 p.m.—NUTRITION PIONEERING, The Benjamin Franklin Hotel

Come with Me to the South Pacific—Margaret Mead, Ph.D., Associate Curator of Ethnology, American Museum of Natural History, New York City

World-Wide Opportunities—D. Mark Hegsted, Ph.D., Associate Professor of Nutrition, Harvard School of Public Health, Boston

There Are No Fat Women in Indonesia—Fredrick J. Stare, M.D., Ph.D., Professor of Nutrition, Schools of Medicine and Public Health, Harvard University, Boston

*Wednesday, October 27*

9:30 a.m.—REGISTRATION AND EXHIBITS

9:30 a.m.—CONFERENCE OF COLLEGE AND UNIVERSITY HOME ECONOMICS FACULTIES AND DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, The Benjamin Franklin Hotel

10:00 a.m.—CHANGING FOOD HABITS

Special Problems of Nationality Groups in the U. S.—Natalie F. Joffe, Ph.D., Queens College, Flushing, New York

As You See and Hear It, You Learn—Abraham Krasker, Ph.D., School of Education, Boston University

How We Get Cooperation—H. M. Hildreth, Ph.D., Chief Clinical Psychology Division, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.

The Nutritionist and Dietitian Speak—C. Frances MacKinnon, Associate Professor of Nutrition, The University of North Carolina, Chapel Hill

10:00 a.m.—IMPORTANCE OF QUALITY FOOD

Top Management's Viewpoint—George H. Gehrmann, M.D., Director, Medical Division, Employee Relations Department, E. I. Du Pont de Nemours & Company, Inc., Wilmington

Organization and Management—Margaret L. Mitchell, Vice-President—Food Production, The Stouffer Corporation, Cleveland

Tailor-Made Recipes for Modern Food—Pearl Jackson Aldrich, Ph.D., Associate Professor of Institution Administration, Michigan State College, East Lansing

# IMPORTANT

## PLEASE USE THE NAME KNOX WHEN RECOMMENDING "GELATINE"

There's a reason for this as all "gelatines" are not alike.
Factory flavored brands are 85% sugar and only 10% gelatine.

- **KNOX** is all protein — no sugar.
- **KNOX** can be used in diabetic diets.
- **KNOX** can be used in high protein diets.
- **KNOX** can be used in reducing diets.
- **KNOX** can be used in low-salt diets.

For 64 years the Medical profession have found Knox dependable and the Knox family will always keep it that way.

32-Envelope Economy Size Package

4-Envelope Family Size

**KNOX the real gelatine**

**all protein • no sugar**

KNOX GELATINE • JOHNSTOWN, NEW YORK

10:00 a.m.—SODIUM-RESTRICTED DIETS
Indications and Contraindications for the Sodium-Restricted Diet—George J. Gabuzda, M.D., City Hospital, Cleveland
Calculated vs. Analyzed Values in the New Sodium Tables—Paul A. Clifford, Ph.D., Division of Food, Food and Drug Administration, Washington, D. C.
Nomenclature and Practical Aspects—Corinne Robinson, Head, Department of Foods and Nutrition, Drexel Institute of Technology, Philadelphia

1:00 p.m.—MEETING OF STATE COMMUNITY NUTRITION CHAIRMEN

1:00 p.m.—MEETING OF STATE DIET THERAPY CHAIRMEN

2:00 p.m.—MATERNAL AND INFANT HEALTH
Trends and Advances in Infant Nutrition—Paul Gyorgy, M.D., Chief of Service, Department of Pediatrics, Hospital of the University of Pennsylvania, Philadelphia
Nutrition Implications of the Vanderbilt Cooperative Study—William J. McGanity, M.D., Assistant Professor of Obstetrics and Gynecology, Vanderbilt University, Nashville

2:00 p.m.—EVALUATION AND MANAGEMENT
Answering the Need—George Bugbee, President, Health Information Foundation, New York City
Examining the Several Systems of Food Distribution to Patients—Louise Wilkonson, Dietary Consultant, American Hospital Association, Chicago

2:00 p.m.—NON-NUTRITIVE SWEETENERS
Fredrick J. Stare, M.D., Ph.D., Professor of Nutrition, Schools of Medicine and Public Health, Harvard University, Boston, *Moderating*
Experimental Studies on Non-Nutritive Sweeteners—Robert M. Kark, M.D., F.R.C.P., Professor of Medicine, University of Illinois, Chicago
Patient Acceptance—Martha F. Trulson, D.Sc., Assistant Professor of Nutrition, Harvard School of Public Health, Boston

2:00 p.m.—SCHOOL LUNCH (*speakers to be announced*)

3:30 p.m.—PROCESSING AND MARKETING—AIDS TO MANAGEMENT
Food Poisoning—A Continuing Problem—Dorothy L. Hussemann, Ph.D., Chairman, Department of Foods and Nutrition, University of Wisconsin, Madison
1954 Outlook in Food Consumption, Surplus Commodities, and Food Habits—O. V. Wells, Ph.D., Administrator, Agricultural Marketing Service, U. S. Department of Agriculture, Washington
The Preservation of Foods by Ionizing Radiation—Samuel A. Goldblith, Ph.D., Assistant Professor of Food Technology, Massachusetts Institute of Technology, Cambridge

3:30 p.m.—NEW TRENDS IN TEACHING NUTRITION IN THE NURSING CURRICULUM
Sister Mary Donata Lins, Director, Home Economics, The Cardinal Stritch College, Milwaukee, *Moderating*
*Panel:*
Pretesting—Marjorie Edwards, Teaching and Clinic Dietitian, Mountainside Hospital, Montclair, New Jersey
Food Preparation for Diet Therapy—Emily Kroog, Instructor, New York Hospital School of Nursing, Cornell University, New York City
The Workshop as a Tool—Frances V. Krone, Cincinnati
Integrating Practice into the Nursing Curriculum
Scheduling in the Integrated Program—Margaret Ewen, Instructor, School of Nursing, University of Pennsylvania, Philadelphia

3:30 p.m.—ARE YOUR DIETS THERAPEUTIC?
Adequate Therapeutic Diets—William H. Sebrell, M.D., Director, National Institutes of Health, Bethesda
The Dietitian-Patient Relationship—Virginia Vivian, University Hospital, University of Michigan, Ann Arbor
Selective Menus for Therapeutic Diets—Evelyn L. Pearson, Hartford Hospital, Hartford

7:00 p.m.—EXHIBITORS' DINNER, The Benjamin Franklin Hotel

*Thursday, October 28*

8:00 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, The Benjamin Franklin Hotel

8:30 a.m.—MEETING OF THE HOUSE OF DELEGATES, The Benjamin Franklin Hotel

9:30 a.m.—REGISTRATION AND EXHIBITS

10:00 a.m.—AIDS TO INSTITUTIONS
Pilot Study in Dietary Evaluation—Alice Smith, Chief, Nutrition Section, Michigan Department of Health, Lansing
Checking Menus Does Not Give the Answer—Marjorie M. Heseltine, Chief, Nutrition Section, U. S. Children's Bureau, Washington, D. C.
The Food Service Supervisor—Isola D. Robinson, Dietetics Specialist, American Hospital Association, Chicago
The Shared Dietitian

10:00 a.m.—EQUIPMENT AND LAYOUT IN FOOD SERVICE
Let's Try It for Size—John W. Hargrave, Registered Architect, Professional Engineer, and Food Service Equipment Consultant, Montgomery, Ohio
A Better Way to Do It—Ercole Rosa, Jr., Lecturer in Industrial Engineering, Columbia University, New York City
Standardization, Approval, and Testing of Equipment for Sanitation—Walter F. Snyder, Executive Director, The National Sanitation Foundation, Ann Arbor

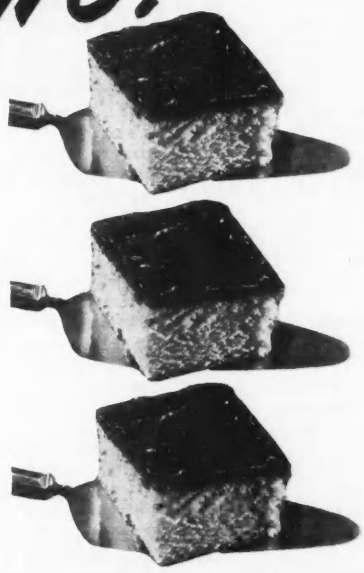
10:00 a.m.—DIET THERAPY—1954
Obesity—George H. Berryman, M.D., Ph.D., Clinical Assistant Professor of Medicine, University of Illinois, Chicago, and Head, Clinical Investigation, Abbott Laboratories, North Chicago
Nutrition and Behavior—Josef Brozek, Ph.D., Associate Professor, Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis
Recent Progress in Nutrition and Hardening of the Arteries—Jeremiah Stamler, M.D., Medical Research Institute, Department of Cardiovascular Research, Michael Reese Hospital, Chicago

12:00 noon—HISTORY OF NUTRITION AND DIETETICS LUNCHEON
Reminiscences of Dietetics, Foods, and Customs—E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, University

2:00 p.m.—HISTORY OF NUTRITION AND DIETETICS
Nutrition in the History of Medicine—George Rosen, M.D., Ph.D., Professor in Health Education, School of Public Health, Columbia University, New York City
The History of Artificial Feeding of Infants—Lydia J. Roberts Essay Award Recipient

2:00 p.m.—NEWER FINDINGS
The Dietetic Management of Post-Gastrectomy Dumping Syndrome—Mark A. Hayes, M.D., Associate Professor, Department of Surgery, Yale University, New Haven

# Compare!



.....PORTION CONTROL

.....COST

.....QUALITY

## ...and you'll choose Downyflake every time!

For a third of a century, America's finest institutions have been finding Downyflake Fully Prepared Baking Mixes superior in every department:

**PORTION CONTROL** . . . Downyflake helps you budget and plan your menu accurately and with full confidence. Downyflake is the one and only ingredient you need keep track of. Eliminates cost uncertainty in connection with making your own mix. With Downyflake you know your costs in advance—to the split penny.

**COST** . . . for its superior quality, you can't buy better than Downyflake. The simple "just add water, mix and bake" operation is an enormous saving in labor cost of food preparation. Enables your bakers to produce more, in greater variety . . . and have more time for finishing.

**QUALITY** . . . Tried, proven, dependable. World pioneer in prepared baking mixes, Downyflake maintains its leadership through continuous scientific research and improvement . . . through skillful selection and blending of the finest ingredients money can buy.

Compare Downyflake! Prove by performance by sending for free sample today. Quality speaks with greatest eloquence!

**5 SUPERIOR QUALITY BAKING MIXES**
• *White Cake* • *Yellow Cake* • *Spice Cake*
*Devils Food Cake* • *Gingerbread*

**Downyflake BAKING MIX DIVISION**
DOUGHNUT CORPORATION OF AMERICA
393 SEVENTH AVE., NEW YORK 1, N. Y.

DOWNYFLAKE BAKING MIX DIV.
Doughnut Corporation of America
393 Seventh Ave., New York 1, N. Y. JADA 9
Kindly send me a sample of ..... Cake Mix.
☐ "Variety Downyflake Cakes" Folder
☐ Wall Chart "Baking Helps by Downyflake"
Name.....
Firm or Institution.....
Address.....
City.....Zone.....State.....

Serum Lipids and Atherosclerosis in Diabetes—Henry T. Ricketts, M.D., Professor of Medicine, The University of Chicago

Teeth—Sweet and Sour—Paul E. Boyle, D.M.D., Professor of Oral Histology and Pathology, University of Pennsylvania, Philadelphia

2:00 p.m.—THE DIETITIAN IN MANAGEMENT RESEARCH

Management Research in Food Service Operations—Mary K. Bloetjes, Ph.D., Professor and Head, Department of Institution Administration, The Florida State University, Tallahassee

Developing a Management Research Problem

2:00 p.m.—MENTAL HEALTH

Opportunities for Dietitians in Mental Hospitals—Paul Haun, M.D., Clinical Director at Graylyn, The Bowman Gray School of Medicine, Wake Forest College, Winston-Salem

3:30 p.m.—MENTAL HEALTH

Child Nutrition in Mental Deficiency—Gale H. Walker, M.D., Superintendent, Polk State School, Polk, Pennsylvania

The Dietitian's Contribution in the Care of the Mental Patient—Hilding M. Bengs, M.D., Commissioner of Mental Health, Commonwealth of Pennsylvania, Harrisburg

Joint Committee A.P.A.-A.D.A. Report—Ralph M. Chambers, M.D., Chief Inspector, American Psychiatry Association, Washington, D. C., *and* Clarice D. Gullickson, Dietetic Division, Veterans Administration, Washington, D. C.

3:30 p.m.—NEW PHILOSOPHIES OF WEIGHT CONTROL

Effect on Appetite of Isocaloric Changes in Carbohydrate, Protein, and Fat—Jeffrey Fryer, M.D., School of Nutrition, Cornell University, Ithaca

Further Studies on Weight Reduction on Low-Carbohydrate and Low-Fat Diets—Dena C. Cedarquist, Ph.D., *and* Wilma D. Brewer, Ph.D., Department of Foods and Nutrition, Michigan State College, East Lansing

Communication Theory–Patient Assessment–Psychosomatic Approach—George H. Pollock, M.D., Ph.D., Assistant Professor of Psychiatry, College of Medicine, University of Illinois, Chicago

3:30 p.m.—RESEARCH IN ADMINISTRATION

Is Research Necessary for Equipment and Layout Planning?—Edith A. Jones, Chief, Nutrition Department, Clinical Center, National Institutes of Health, Bethesda

How to Halve Your Reading Time—R. P. Magarigal, President, The R. P. Magarigal Company, Media, Pennsylvania

Study of Equipment Standardization—Alta B. Atkinson, Manager of Food Service and Instructor in Home Economics, Teachers College, Columbia University, New York City

5:30 p.m.—EXHIBITS CLOSE

8:00 p.m.—GET-TOGETHER FOR VOCATIONAL GUIDANCE AND PUBLIC RELATIONS CHAIRMEN, The Benjamin Franklin Hotel

*Friday, October 29*

(*All Friday meetings will be at The Benjamin Franklin Hotel and Hotel Adelphia*)

9:30 a.m.-2:00 p.m.—REGISTRATION

10:00 a.m.—CHILD FEEDING

Food Allergy and the Celiac Syndrome—Dorothy H. Andersen, M.D., The Presbyterian Hospital, New York City, *and* Emma Mike, Dietary Department, Babies Hospital, New York City

Dietetic Management of Diabetic Children—Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University, and Medical Director, St. Christopher's Hospital for Children, Philadelphia

Vitamin D and Calcium Metabolism in Children—Harold E. Harrison, M.D., Pediatrician-in-Chief, Baltimore City Hospital, Baltimore

10:00 a.m.—NUTRITION IN THE WORLD

A Look into Other Countries—Andromache Sismanidis, Nutrition Representative, North American Regional Office, Food and Agriculture Organization of the United Nations, Washington, D. C.

Let's Look at the Children—August R. Lindt, Ph.D., Chairman of Executive Board, United Nations International Children's Fund, New York City

Establishing a College of Nutrition and Home Economics in Jerusalem—Elda Robb, Ph.D., Director, School of Home Economics, Simmons College, Boston

Qualities of Import-Export Value—Marguerite Queneau, Institut National d'Hygiene, Paris, France, and Nutrition Bureau, New York State Department of Health, Albany

10:00 a.m.—PERSONAL DEVELOPMENT TODAY

The Use of Job Analysis in Planning Labor Requirements—Wayne F. Chase, Assistant Department Head, Kodak Park Cafeteria, Eastman Kodak Company, Rochester, New York

Group Development in Training—Stanford Knight, Ph.D., Director, Fels Center for Group Dynamics, Temple University, Philadelphia

1:00 p.m.—MEETING OF STATE FOOD ADMINISTRATION CHAIRMEN

1:00 p.m.—MEETING OF STATE PROFESSIONAL EDUCATION CHAIRMEN

2:00 p.m.—BE YOUR OWN CONSULTANT

Alta B. Atkinson, Manager of Food Service and Instructor in Home Economics, Teachers College, Columbia University, New York City, *Presiding and Summarizing*

Shortcuts to Financial Control for Small Institutions—Neva Radell, Ph.D., Professor of Business Administration, Pratt Institute, and Director, New York State Restaurant Association, New York City

Nutritional Accounting—Ruth A. Reams, Chief, Dietetic Service, Veterans Administration Hospital, Brooklyn

Be Your Own Consultant—If—Kenneth F. Herrold, Ph.D., Executive Officer, The Center for Improving Group Procedures, Teachers College, Columbia University, New York City

2:00 p.m.—CURRENT NUTRITION RESEARCH

Advances in Nutrition Research—Charles Glen King, Ph.D., Sc.D., Scientific Director, The Nutrition Foundation, Inc., New York City

The Calcium Controversy—Margaret A. Ohlson, Ph.D., Head, Department of Foods and Nutrition, Michigan State College, East Lansing

Balance Studies and the Metabolic Unit—Frederic C. Bartter, M.D., *and* Merme Bonnell, National Heart Institute, National Institutes of Health, Bethesda

7:00 p.m.—ANNUAL BANQUET—Grace Bulman, *Presiding*

Invocation—Dr. Daniel A. Poling, Editor and Chairman of the Board, *Christian Herald*, and Chaplain, The Chapel of Four Chaplains, Philadelphia

Life—Our Greatest Opportunity—Dr. Daniel A. Poling, Philadelphia

Presentation of the Lydia J. Roberts Essay Award for 1954

Presentation of the Mary Swartz Rose Fellowship for 1954

Presentation of the Marjorie Hulsizer Copher Award for 1954

# Meat...

## *and the Protein Requirement in Tuberculosis*

Evaluation by blood analyses shows that protein needs of the tuberculous patient increase markedly with advancing extent and duration of the disease.[1,2]

Although the concentration of total serum proteins in tuberculosis may be elevated, controlled studies have shown that the elevation usually is due to an increase in the globulins.[3] In patients with advanced tuberculosis the albumin fraction of the total serum protein may be sharply lower, while the globulin fractions are distinctly higher in amounts than normal.[4]

This low serum albumin concentration has been interpreted to reflect "a low protein intake as well as a retarded or failing support with protein released from protein reserves."[2] Unless the low level of serum albumin is corrected by enhanced protein nutrition, it "eventually means a low hemoglobin level and a low total red cell count with cells that have a normal color index."[2]

To satisfy the increased protein needs, 120 grams of protein or more should be supplied in the daily diet.[2] Meat and other high protein foods of animal origin, appetizingly served, assist in getting patients with depressed appetite to eat the amount of food needed to derive the required protein.

Other important contributions of meat are its valuable amounts of B vitamins and of essential minerals, especially iron, phosphorus, and potassium.

---

1. Getz, H. R.; Westfall, I. S., and Henderson, H. J.: Nutrition in Tuberculosis as Evaluated by Blood Analysis, Am. Rev. Tuberc. *50*:96 (Aug.) 1944.
2. Getz, H. R.: Problems in Feeding the Tuberculous Patient, J. Am. Dietet. A. *30*:17 (Jan.) 1954.
3. Eichelberger, L., and McCluskey, K. L.: Chemical Studies in Tuberculosis: Plasma Proteins, Cholesterol and Corpuscle Volume, Arch. Int. Med. *40*:831 (Dec.) 1927.
4. Seibert, F. B.; Seibert, M. V.; Atno, A. J., and Campbell, H. W.: Variation in Protein and Polysaccharide Content of Sera in Chronic Diseases, Tuberculosis, Sarcoidosis, and Carcinoma, J. Clin. Invest. *26*:90 (Jan.) 1947.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

American Meat Institute
Main Office, Chicago... Members Throughout the United States

## COMMERCIAL EXHIBITORS—37th ANNUAL MEETING OF THE AMERICAN DIETETIC ASSOCIATION, PHILADELPHIA—OCTOBER 26–28, 1954

Aatell & Jones, Inc.
Adolph's Ltd.
Aluminum Cooking Utensil Company
Amcoin Corporation
American Can Company
American Dry Milk Institute, Inc.
American Gas Association
American Institute of Baking
American Machine & Foundry Company
American Molasses Company
American Sterilizer Company
Anetsberger Bros., Inc.
Armour & Company
Automatic Food Shaping Co., Inc.
Automatic Orange Juicer Corp.
Beech Nut Packing Co.
Best Foods, Inc.
G. S. Blakeslee & Company
S. Blickman, Inc.
G. S. Blodgett & Company, Inc.
Boonton Molding Company
Borden Company
Bucksco Sales, Inc.
Calgon, Inc.
Campbell Soup Company
Carnation Company
Cereal Institute, Inc.
Chicago Dietetic Supply House, Inc.
Cleveland Range Company
Cling Peach Advisory Board
Colonial Beef Company
Colt's Manufacturing Company
Commodity Brokers, Inc.
Continental Can Company, Inc.
Cory Corporation
Cramore Fruit Products, Inc.
Cream of Wheat Corporation
Crescent Metal Products, Inc.
Dennis Water Cress, Inc.
Detroit Michigan Stove Company
Diamond Crystal Salt Co.
The Dietene Company
Edward Don & Company
Doughnut Corporation of America
DuBois Company
Duke Manufacturing Company
Economics Laboratory, Inc.
Encyclopaedia Britannica
Evaporated Milk Association
Fearn Foods, Inc.
Florida Citrus Commission
Fogel Refrigerator Co.
Foley-Irish Corporation
Foster Refrigerator Corporation
E. Fougera & Company, Inc.
W. H. Frick, Inc.
Frying Equipment & Supply Co.
General Foods Corporation
General Mills, Inc.
Gerber Products Company
Globe Slicing Machine Co.
Groen Manufacturing Company
H. J. Heinz Company
Hilker & Bletsch Company
Hobart Manufacturing Company
Hotpoint, Inc.
B. H. Hubbert & Son, Inc.
Insinger Machine Co.
Institutional Feeding & Housing
Institutions Magazine
International Minerals & Chemical Corp.
International Molded Plastics, Inc.
Jarvis & Jarvis, Inc.
Mead Johnson & Company
Kellogg Company
Klenzade Products, Inc.
Charles B. Knox Gelatine Company
Kraft Foods Company
Legion Utensils Company
Lily-Tulip Cup Corporation
J. B. Lippincott Company
Lofstrand Company
Lyons Alpha Products, Inc.
McCall Refrigerator Corp.
McGraw Electric Company
M & R Laboratories, Inc.
Magic Chef, Inc.
Maid Easy Cleansing Products Corp.
Malleable Steel Range Mfg. Corp.
Maltex Company
Market Forge Company
Mayer China Company
Mealpack Corporation
Meals-On-Wheels
Merck & Company
Metropolitan Wire Goods Corporation
National Biscuit Company
National Cornice Works
National Cranberry Association
National Dairy Council
National Livestock & Meat Board
National Pretzel Bakers Institute
H. R. Nicholson Company
Onondaga Pottery Company
John Oster Mfg. Company
Paper Cup & Container Institute
L. H. Parke Company
Pepperidge Farm, Inc.
Parker D. Perry, Inc.
Pet Milk Corporation
Pfaelzer Brothers, Inc.
Philadelphia Gas Works
Pillsbury Mills, Inc.
Pineapple Growers Association
Plastics Manufacturing Company
Processed Apples Institute, Inc.
Procter & Gamble
Quaker Oats Company
Qualheim, Inc.
Ralston Purina Company
Raybeam Aluminum Cleaner Co.
Raytheon Mfg. Company
Rich Products Corporation
Salvajor Company
W. B. Saunders Company
Savory Equipment, Inc.
SeaPak Corporation
Seco Company, Inc.
Ad Seidel & Son, Inc.
John Sexton & Company
Standard Brands, Inc.
Supplee-Wills-Jones Milk Co.
Swartzbaugh Mfg. Company
Tea Council of the U.S.A., Inc.
Emery Thompson Machine & Supply Co.
Toledo Scale Company
United Fresh Fruit & Vegetable Assn.
United Fruit Company
U. S. Vitamin Corporation
Universal Dishwashing Machine Company
Vacuum Can Company
Webster Van Winkle Corporation
Victory Metal Mfg. Corp.
George B. Vrooman, Inc.
Vulcan Hart Mfg. Company
Waring Products Corporation
Watertown Manufacturing Company
Wesson Oil & Snowdrift Sales Co.
Williams & Wilkins Company
Wyandotte Chemicals Corporation

For year-'round
dependability
this mountain hospital
relies on *GAS*

At the Santa Anita Hospital, located a mile high in the quiet beauty of the San Bernardino Mountains, Gas Cooking gives the food they serve the best nutritional values plus a big extra . . . the taste appeal of appetizing appearance.

In any hospital, but especially one in a location as remote as this, the problem of fuel *supply* is important, also. Here again Gas is the preferred cooking medium, for it is both dependable and economical. The continuous flow of Gas has not been interrupted by the heavy snow storms of the area, and the cost for this steady supply of fuel is no greater than if the hospital were located within the city limits of Los Angeles.

There are many other advantages, too, that make Gas the preferred cooking fuel for all hospital requirements. Gas Cooking is clean, fast, dependable efficient . . . and versatile, to meet the exacting demands of hospital service.

Ask your Food Service Equipment Dealer or Gas Company Representatives for full details on how Gas and Modern Gas Equipment fulfills every hospital cooking need.

**AMERICAN GAS ASSOCIATION**

420 LEXINGTON AVENUE, NEW YORK 17, NEW YORK

MORE AND MORE
THE TREND IS TO GAS
FOR COMMERCIAL COOKING

# News Notes

**New Approved Internships.** At the meeting of the A.D.A. Executive Board the latter part of July, approval was given to two new dietetic internships. They are: University Hospitals, University of Wisconsin, Madison—Ruth S. Dickie, Director of Dietetics; and Tuskegee Institute, Tuskegee Institute, Alabama—Barbara B. Robinson, Director of Dietetics.

**New FDA Commissioner.** Appointment of George P. Larrick as Commissioner of Food and Drugs, U. S. Department of Health, Education, and Welfare has been announced by Oveta Culp Hobby, Secretary. Mr. Larrick has been a career employee in the Food and Drug Administration since 1923, and has served as Deputy Commissioner since 1951. He succeeds Charles W. Crawford, whose retirement became effective on July 31. Mr. Crawford for many years devoted much of his time to drafting food and drug regulations and standards and was the principal representative of the F.D.A. with members of Congress and legislative advisers who drafted the present Federal Food, Drug and Cosmetic Act, enacted in 1938.

**New Hospital Commission Director.** In July, Dr. Kenneth B. Babcock became Director of the Joint Commission on Accreditation of Hospitals in Chicago. Dr. Babcock, a graduate of the University of Michigan School of Medicine, Detroit, prior to his new appointment, was Director, Grace Hospital. He is a member of the American College of Surgeons and a Fellow of the American College of Hospital Administrators. He has also served as President of the Michigan Hospital Service (Blue Cross) and is a member of the board of directors of the Michigan Medical Service (Blue Shield), as well as a number of other professional commissions and committees.

A second appointment to the Hospital Commission is that of Dr. J. R. Anderson as Assistant to the Director. Dr. Anderson was formerly connected with the A.M.A.'s Council on Medical Education and Hospitals.

The Joint Commission on Accreditation of Hospitals was organized in 1951 to take over the hospital approval program originated by the American College of Surgeons. The Commission is an independent group voluntarily supported by five leading health agencies in the U. S. and Canada to improve hospital care by establishing standards and accrediting hospitals which request to be surveyed and meet such standards.

**Mr. Bugbee to Be Honored.** The Award of Merit, the American Hospital Association's highest honor, will be presented to George Bugbee at the A.H.A.'s convention in Chicago on September 16. Mr. Bugbee will receive this honor in recognition of his work as chief executive officer of the Association for eleven years. During his tenure, membership of A.H.A. rose from 3200 hospitals to the present figure of 5200, which represents 90 per cent of the nation's general hospital beds. On May 1, of this year, Mr. Bugbee became President of the Health Information Foundation in New York City, an organization supported by 165 drug, pharmaceutical, chemical, and allied companies for the purpose of raising community health standards through discovering and disseminating health information of all types.

**Plentiful Foods MONTHLY LIST**

For the month of September, the U.S.D.A. has named beef as the food for its "feature." Others will be:

*Protein foods and fats*

| | |
|---|---|
| Beef | Peanuts and peanut butter |
| Chickens—broilers fryers, and hens | Salad oils |
| Eggs—medium and small | Turkeys |
| Milk and other dairy products | Vegetable shortening |

*Other foods*

| | |
|---|---|
| Honey | Limes—fresh and processed |
| Lemons—fresh and processed | Rice |
| | Vegetables—fresh |

A special release from the Department of Agriculture states that this year's crop of turkeys is above last year's, and that prices will be satisfactory to both producers and consumers.

**Food Consumption.** According to a recent survey by the U.S.D.A., most U.S. homemakers used at least three different kinds of fats and oils in their home cooking—usually a combination of butter and two other fats, such as vegetable shortening, lard, shortening compound, cooking oil, or margarine. More than eight in every ten interviewed reported that they had used some butter during the previous year. Almost as many said they used vegetable shortening. Sixty per cent had used margarine while half had used lard and cooking oils. Very few said they cooked with only one or more than five of the six fats and oils listed. Bacon grease was used by 80 per cent of the homemakers, but primarily for seasoning vegetables.

An increase in consumption of butter has followed the reduction in price supports on butter and other dairy products. A cooperative project financed by the American Dairy Association and the U.S.D.A. indicates that in April dairy prices declined but that purchases of butter increased an estimated 7 per cent. Preliminary data indicate that sales were up about 10 per cent for the early weeks in May. This report does not include purchases in institutional outlets.

Although a much larger amount of frozen Florida citrus juices will be on the market this year, there will be fewer frozen fruits and berries because of a much smaller crop. Most popular among the frozen fruits are strawberries with a pack of 226,000,000 lb. being sold in 1953.

**TV to Spotlight Women's Services.** Special TV spots featuring the nine directors of the women's military services will soon be distributed to all TV stations. This project was sponsored by the Defense Advisory Committee for Women in the Armed Services to publicize to the American public the high professional caliber of the directors. Included in the nine to be featured are two A.D.A. members: Col. Miriam E. Perry, Director of the Air Force Women's Medical Specialist Corps, and Col. Nell Wickliffe, who holds the same position in the Army's Women's Medical Specialist Corps. A dietitian, Mary I. Barber, also serves on the committee which is sponsoring the TV spots.

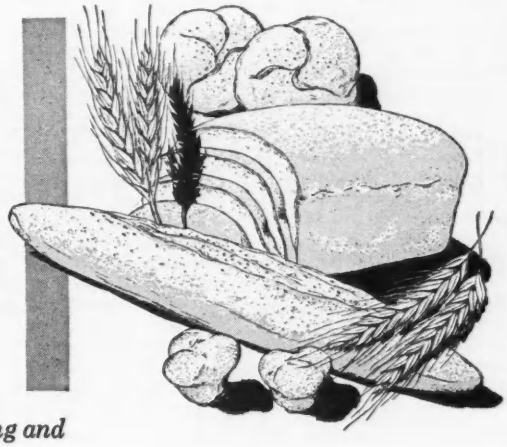
**Dietetic Interns Graduate.** Fourteen members of the class of 1954 at *Henry Ford Hospital*, Detroit, graduated on June 17. The following were presented with diplomas: Jane Burnam, Barry College; Joyce Grabill, Michigan State College; Virginia Hayes, Mundelein College; Catherine Henderson, Acadia University; Patricia Hill, Mundelein College; Helen Kern, Oregon State College; Marilyn Kintner, University of Montana; Marjorie McCarthy, College of St. Theresa; Marilyn Nichol, University of Montana; Shirley Parsons, Drexel Institute; Evelyn Paul, Western Reserve University; Genevieve Pellow, University of Dayton; Julia Rincon, Seton Hill College; and Yvonne Venar, Western Reserve University

**Appert Award Winner.** For his outstanding work in revitaminizing white bread and improving other common foods, as well as his more than thirty years' work on yeast, Dr. Charles N. Frey, retired Director of Research of Fleischmann Laboratories, was awarded the 1954 Nicholas Appert medal by the Institute of Food Technologists at its annual meeting in Los Angeles on June 28.

**Filmstrip on Child Feeding.** A new filmstrip, "Design for Happy Mealtimes," should be of interest to those concerned with feeding children. Issued by the Merrill-Palmer School, Detroit, the first part of the filmstrip shows practices followed in feeding young children

*advertisement*

# FLOUR FOR MAN'S BREAD*

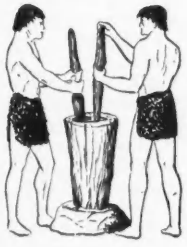


*A Brief History of Milling and Baking by* SCIENCE WRITER

## CHAPTER II. *The Beginning of Grain Cultivation and Grinding*

### THE GREATEST REVOLUTION

Of all the revolutions through which man has passed, the most profound is that which changed him from a food-gatherer to a food-raiser. In short, man learned to become a farmer and food-processor. There is a clear line down through ages of time showing how man adapted himself to new conditions in order to support life.



### EARLY GRINDING TOOLS

Archeological discoveries in Europe show that man used stones as implements for grinding, rubbing, or pounding. 75,000 years ago these rounded stones with a flat working surface were in use. In the long transition, which covered millenniums, man developed mortar forms which were more efficient for grinding because they contained the particles. Actual samples of these devices have been found and dated by experts.

In America, too, pounding stones and mortar-and-pestle forms have been found in once fertile areas, which supported cultures for thousands of years, in California and the Southwestern United States.

### COOKING AND BAKING

Caves in France have been discovered where men lived 25,000 years ago. In these crude homes, evidence has been found that milling was done. Hollowed stones bearing the marks of fire and primitive underground ovens in these caves show that these early men cooked foods made from grain, for these devices would not have been necessary to cook only meat.

### HARVESTING TOOLS

12,000 years ago, European man had developed small flints with a saw-tooth edge. It is reasonable to suppose that these were set end-to-end in a stick and the whole device then was used as a sickle for harvesting.

### GRAIN CULTIVATION BEGINS

These rubbing stones, these tiny, saw-toothed flints, crude ovens, and fire-stained stone bowls show that man was becoming ready to cultivate the grains. The logical then happened: grain cultivation began. Probably this occurred about 9,000 years ago in a region which is now in Israel and Syria. And it is probable that all ancient wheat cultivation spread from this area.

### BETTER NUTRITION

Today, thanks to scientific precision and modern manufacturing, we can restore to white flour and white bread important vitamin and mineral elements which are lost, unavoidably, during milling. This is enrichment. It provides better nutrition for millions of Americans and Canadians. The vitamins used in enrichment are "manufactured." They are identical chemically and in biological activity with Nature's own. Because they are manufactured, they can be sold at a lower cost than if they were extracted from natural sources.

This is one of a series of articles which is being published in professional nutrition and dietetic journals, and which will be widely distributed for educational purposes. Reprints of this and all other chapters are available without charge. Write to the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.

*This is the title of a definitive history of milling by John Storck and Walter Dorwin Teague, published by the University of Minnesota Press at Minneapolis and copyrighted by the University of Minnesota. It is used with permission as a source of material for this series of advertisements.

*The next chapter* titled: "How Wheat Cultivation Migrated" will be published soon.

**Enriched with vitamins and iron for better nutrition**

*advertisement*

in the Merrill-Palmer Nursery School. The second part shows the application of these practices to the home and family situation. The discussion guide which accompanies the film strip includes the topics of limited self-selection," and "simple modifications to suit the child's level of development," all of which are illustrated in the filmstrip itself. Prints of the film are available for $3.50 each from the Library, Merrill-Palmer School, 71 East Ferry Avenue, Detroit 2.

**Museum Exhibit on Food.** "Food for Life" is the title of a dramatic new educational exhibit being sponsored by Swift & Company at the Museum of Science and Industry in Chicago. "Eating the right foods will add years to your life and life to your years" is the theme of the exhibit which portrays the extent of man's knowledge of foods. This is the first time the nutrition story has been told in a museum on such a large scale. An expected 2,000,000 people will view the exhibit annually. It describes how the individual can benefit from proper eating practices, including the selection of the right foods in the right amounts. The role of the soil, plants, and livestock in providing proper food for human beings is explained, as well as the story of food processing and distribution. A soil section illustrates how proper nutrients are necessary to produce plants which properly nourish human beings and livestock, while the plant section describes how plants convert nutrients from the soil, water, and air into food. The livestock section is concerned with animal nutrition. Another section shows how human beings assimilate food and why proper balance of all nutrients is necessary for health. Another section deals with selection, storage, preparation, and serving of food.

**UNICEF Aid Program.** The Executive Director's semi-annual progress report indicated that the United Nations Children's Fund (UNICEF) is racking up an impressive record in waging mass health campaigns against disease and malnutrition. From 1951 to mid-1954, UNICEF milk and other food supplements distributed through both emergency and long-range nutrition programs went to 15,500,000 women and children. Millions of others benefited from UNICEF aid to milk conservation projects, maternal and child welfare services, and other facets of the UNICEF health program. The goal for 1954 is to assist more than 25,000,000 children and nursing and pregnant mothers in 213 projects in 78 countries. It is expected that nearly 4,000,000 children and mothers in 8 countries will receive help during the current years. Future plans include a program of milk conservation, for which approval has already been received for 164 plants in 25 countries for pasteurizing, sterilizing, or drying milk or milk substitutes. When these plants are in operation, they will provide free or low-cost milk to some 4,000,000 children and nursing mothers, and many times that number will benefit from the availability of hygienic supplies.

An outstanding UNICEF project is a plant, which the Indonesian government and UNICEF together are opening early next year which will produce 600 tons of soybean milk powder annually. Of this output, the government will buy 300 tons annually for its free child-feeding program, under which some 23,000 needy children will receive 40 gm. milk a day. The other half of the plant's production will be offered on the open market, at controlled prices to be worked out by UNICEF and the government. It is hoped that this will popularize soybean milk and that the new plan will serve as an encouragement to other countries to take similar steps. At present, Indonesian children have not nearly enough milk of any kind, and the country's fresh milk supply is insignificant and very expensive. The new product will be reasonably priced at less than half that of imported whole milk powder. The reverse principle of "give-away" is involved in the UNICEF project of helping governments initiate child welfare programs, which they later can operate with their own resources, thus permitting UNICEF aid to be withdrawn for use elsewhere. Countries now assuming full responsibility for continuing school feeding projects with their own resources are Costa Rica, El Salvador, Honduras, and Nicaragua.

**Methods Improvement for Hospitals.** A Committee of the American Hospital Association has been studying the part of organized methods improve-

Yes, It's True

*Now you can put*

**Fully Sweetened Foods**

*Back in the Diet*

*with*

**SUCARYL®**

(Cyclamate, Abbott)

*the new non-caloric sweetener*

**Fresh, Clean Sweetness**

Tastes like sugar, never has an "off" taste in ordinary use.

**Won't Turn Bitter in Cooking**

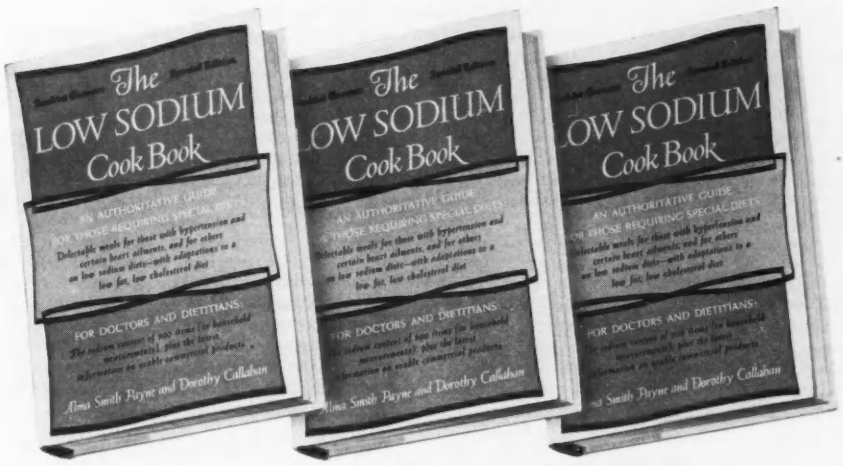
Cooked or baked—in any food at any temperature—SUCARYL holds its sweetness.

**In Tablets, Solution, and Powder**

At all pharmacies. See our Recipe Booklet for a wide and colorful variety of SUCARYL-sweetened dishes.*

*At pharmacies; or write Abbott Laboratories, North Chicago, Ill.

409144




# Special offer! New cook book* for low sodium patients

Introduced last year, The Low Sodium Cook Book has been widely approved for its practical help in making saltless meals appetizing and interesting.

Because of the growing popularity of fresh lemons as a seasoning substitute for salt, Sunkist has made a quantity purchase of this cook book. The book sells in stores for $4.00 but, due to this large order, Sunkist is making it available in a special edition at $1.25.

This edition is the same book with two exceptions—it has a paper cover instead of cloth and it has an *added* section on fresh lemons as a seasoning. The rest of the contents are identical —nearly 500 pages of useful information for the low salt dieter including unusual recipes and helpful suggestions as well as tables giving the sodium, cholesterol and fat contents of 900 items in household measurements.

Here is a long-needed, complete and authoritative guide to help make low salt menus palatable and interesting. You and your patients are invited to write for copies at the special price while the limited supply lasts.

**By Alma Smith Payne and Dorothy Callahan, research dietitian, Massachusetts General Hospital, with introduction by Francis L. Chamberlain, M. D., M. Sc. D.*

## HIGHLIGHTS OF THE LOW SODIUM COOK BOOK

- ***how to put your doctor's instructions to work.***
- ***how to accommodate the family to the diet.***
- ***how to use herbs and seasonings.***
- ***how to use wines in cooking.***
- ***how to prepare meats, chicken, fish, vegetables, sauces, salads and salad dressings for the low sodium dieter.***
- ***how to bake breads and desserts with low sodium substitutes.***
- ***how to make low sodium candies, jellies, etc.***
- ***how to use a home freezer for the dieter.***
- ***how to pack a low sodium lunch box.***
- ***how to eat out on the diet.***

**Sunkist®** **FRESH LEMONS**

Sunkist Growers
Section M-7209, Termina Annex
Los Angeles 54, California

Please send me postpaid_____copies of The Low Sodium Cook Book. I enclose $_____. (Send $1.25 for each copy ordered.)

Name_____

Street Address_____

City_____ Zone____ State_____

ment (work simplification) in industry, medical clinics, and hospitals that might be of value to hospital management. As a result of this work, the committee has just released an "interim report" in the form of a booklet available from A.H.A. In it is presented first an outline which covers: reason for program, what it is, responsibility for and who does it, how, and results. This over-all outline is followed by chapters which present case studies of hospitals in which organized methods improvement programs have been established. These institutions include: Harper Hospital, Detroit; Ohio State University Hospitals, Columbus; Blodgett Memorial Hospital, Grand Rapids; Cleveland Clinic Foundation and St. Luke's Hospitals, Cleveland; Massachusetts General Hospital, Boston; Children's Hospital, University of Pittsburgh Medical Center; and the VA Hospital Operations Service, Washington, D. C. A glossary of terms is also included. The different approaches used by these various hospitals in solving the same type of problem should stimulate further effective work in this area of hospital administration.

**Government Publications.** The Poultry Division of the U.S.D.A. in Washington has prepared mimeographed summary statements of eleven research reports, which it deems to have wide practical interest. The projects included relate to poultry and egg marketing, and cover such topics as "Some Considerations in Buying Eggs on a Quality Basis," "What Weight Broilers?" and "Survival of Pathogenic Bacteria Foods Prepared with Whole Egg Solids." Copies may be obtained by writing the Division in Washington.

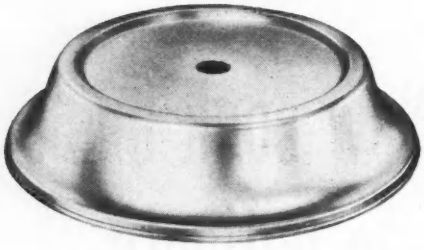
The U.S.D.A.'s Office of Experiment Stations has released its 1953 report of activities in the state agricultural experiment stations. Research for farm progress has covered such widely varied areas as ornamental plant research, fruit production research, plant and animal disease investigations, human nutrition, foods, family and food economics, poultry research, dairy production, and rural sociology. Copies of this report may be obtained from the Government Printing Office, Washington 25, for 50 cents each.

The fourth section of *Health Manpower Source Book*, issued by the U.S. Department of Health, Education and Welfare, concerns the county data on sixteen health occupations, prepared as a special tabulation from the 1950 census of population. Included in the sixteen occupations are dietitians and nutritionists. In addition to information on the number of persons employed in the sixteen health occupations in each county, data on population, hospital beds, and selected socioeconomic factors are also presented. The text gives an analysis of health facilities and personnel resources. This publication is for sale by the Government Printing Office, Washington 25, for $1.75.

For home economists and nutritionists from other countries, the Human Nutrition Research Branch of the U.S. D.A. has prepared a mimeographed leaflet listing and describing the work of five national organizations in this country having a primary interest in nutrition. For each organization are given: general information as to the purpose, membership, publications, meetings, state and local organizations, and headquarters. The five organizations are: The American Dietetic Association, American Home Economics Association, American Institute of Nutrition, American Public Health Association, and American School Food Service Association. Titled "Descriptions of Selected National Organizations Having a Primary Interest in Nutrition Programs," copies may be obtained from the Human Nutrition Research Branch, U. S. Department of Agriculture, Washington 25.

**Trichinosis Conference.** The *Proceedings* of the Second National Conference on Trichinosis, held in Chicago on March 1, have been reproduced by the U. S. Public Health Service's Communicable Disease Center in Atlanta, Georgia. Limited copies may be obtained by writing to the above address.

**Dietetic Consultant Service.** In the June *News Bulletin* of the International Diabetes Federation is a statement from Australia of particular interest to the dietetic profession. In it, the President of the Diabetic Association reports that a consultant service for patients of private doctors has been established and is "slowly justifying itself.



*Nesting stainless steel*
**PLATE COVERS**

LEGION has the largest assortment in the United States — from 7¼" to 11½" in diameter.

*Don't spoil the appearance of your dining room with unsightly dirt-pitted, grease-filmed or discolored covers.*

Legion's lustrous platinum finished covers are light, durable and easy to keep clean.

No pitting from detergents
No denting by dishwashers
They are a lifetime investment.

Easy to store —
*they save valuable storage space.*

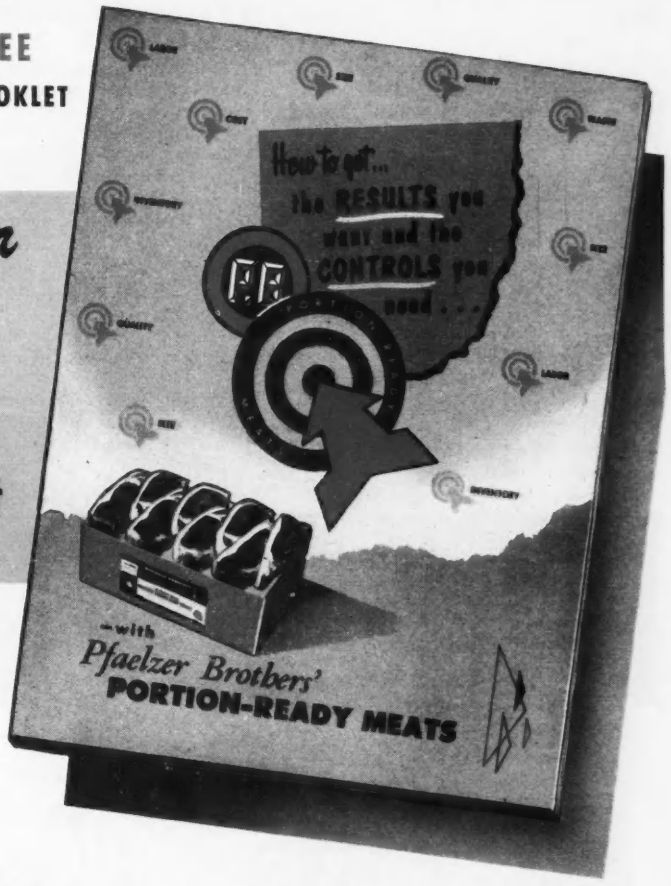
**LEGION UTENSILS CO.**
21-09 40th Ave., Long Island City 1, N. Y.
*Branch offices:*
21 East Van Buren Street, Chicago, Ill.
420 Market Street, San Francisco, Calif.

LEGION UTENSILS CO.
PIONEERS IN STAINLESS STEEL

**NEW . . . VALUABLE . . . FREE**
**20 PAGE *Pfaelzer Brothers* BOOKLET**
**shows how you can—**

# *Achieve greater efficiency*

# in your food department




Learn how Pfaelzer Brothers' Portion-Ready Meats give you better **CONTROL** of the **QUALITY, SIZE** and **COST** of the meat portions you serve . . . a 3-way control essential to efficient food service.

In addition, discover how you can **eliminate waste,** affect **savings in labor** and maintain **accurate inventories** with this modern proven food technique.

Pictorial presentation of a wide variety of Pfaelzer Brothers Beef, Pork, Veal and Lamb Portion Ready items cover 4 pages of the booklet, to make selection of meat items **convenient** and **menu planning** easier.

Pfaelzer Brothers' Portion-Ready Meats are an important factor in achieving desired economies and better management in all phases of food service. Find out how they can provide the **RESULTS** you want and the **CONTROLS** you need. Send for your free copy of this valuable booklet, today. Fill out the coupon below, attach it to your letterhead and mail!

PLEASE SEND COPY OF FREE 20 PAGE BOOKLET
"How to get the Results you want and the Controls you need with Pfaelzer Brothers' Portion-Ready Meats"

NAME_____

POSITION_____

ADDRESS_____

CITY_____ ZONE___ STATE_____

**PFAELZER BROTHERS, INC.**
THE HOUSE OF PERSONALIZED SERVICE
*America's Finest Meats and Poultry*
MEL-BRO BRAND

939 West 37th Place • Union Stock Yards • Chicago 9, Illinois

VISIT OUR BOOTH AT THE A.D.A. CONVENTION

Clients who have used it emphasize the value of talking out their dietetic difficulties at leisure with a trained person who can provide the answers."

**Workingman's Diet.** A two-year study of the eating habits of 600 men working in industrial plants, shows that too few get the nutrients required for a good day's work. A fourth of the men were low in calcium and drank less than half a pint of milk a day. Blood tests showed that too few citrus fruits, tomatoes, and leafy green vegetables for proper ascorbic acid nutrition were consumed. Forty-four per cent were overweight. Breakfasts recorded were frequently only a cup of coffee and a sweet roll, followed in mid-morning with high-calorie snacks sold at the plant. The dietary records and medical examinations revealed not only a shortage of calcium and ascorbic acid but also low thiamine and riboflavin intake. The study was carried out by a team of nutritionists, biochemists, physicians, and technicians of the New Jersey Agricultural Experiment Station under the direction of Dr. MacLean J. Babcock.

**Good Lemon Pie.** To get best results in making lemon pie, the lemon juice should be added to the filling after it has been cooked, according to Dr. Alice Briant of the New York State Experiment Station in Ithaca. During tests, it was found that if a stronger lemon flavor is desired, lemon rind should be added but not lemon juice, since the juice thins the filling, thus requiring more starch or flour which spoils the flavor and texture. Thicker pie fillings can be made over direct heat than in the double boiler. After putting the meringue on the pie it should be allowed to cool 4 or 5 hr.

**Correct Temperature for Eggs.** When eggs are to be separated, they should be removed from the refrigerator at least an hour before using, since when very cold, the white clings to both shell and yolk, according to the U. S. Department of Agriculture. When they are about 75°F., they are most easily separated. . . For meringue and cakemaking, room temperature is best. . . Shells are removed more easily from hard-cooked eggs if they are cooled rapidly in cold running water; this also prevents the dark-colored layer around the yolk. . . Egg whites whip more quickly and to a greater volume when the chill is off. Various studies indicate the best whipping temperature ranges from 64 to 77°F.

**Creamier White Sauces.** Tests at the Indiana Agricultural Experiment Station show that white sauce, creamed vegetables and puddings are creamier when made with homogenized milk. Sometimes the type of milk used is blamed if white sauce on creamed vegetables separates or curdles. But the Indiana studies showed that if the vegetables were drained before combining with the sauce, there would be no curdling regardless of the type of milk.

**Chicken Flavor.** The goal of experiments being made by the U. S. Department of Agriculture in tracing the sources of flavor in chicken is to learn more about the chemical nature of poultry flavor and find ways in which the flavor is developed or destroyed. This information will aid the broiler industry and canners of poultry to give consumers chicken with maximum flavor. First findings in the investigation indicate that most of the flavor comes from the meat, a fair amount from the bone, less from skin, and almost none from fat. Light and dark meat have about the same flavor strength.

**Fresh Prune Juice.** A scarlet colored prune juice made from fresh prunes has been developed by the U.S.D.A. Western Regional Research Laboratory in cooperation with the Washington State Fruit Commission. The juice is made from the Italian prune, the principal variety grown in the Pacific Northwest, and both single-strength and fourfold concentrates have been developed. It is reported that the laboratory methods used should be readily adaptable for commercial use.

**New Frozen Lime "Superconcentrate."** At Winter Park, Florida, a new, 35-fold, unsweetened lime-juice

**SAVORY SPEEDS SERVICE BECAUSE IT'S SELF-UNLOADING!**

You could serve a mile-high stack of toast made the Savory way, yet never cause a toast bottleneck! The toaster is always ready for loading because its continuously moving conveyor unloads automatically, thus speeding up service of crisp, delicious toast – without fuss or bother.

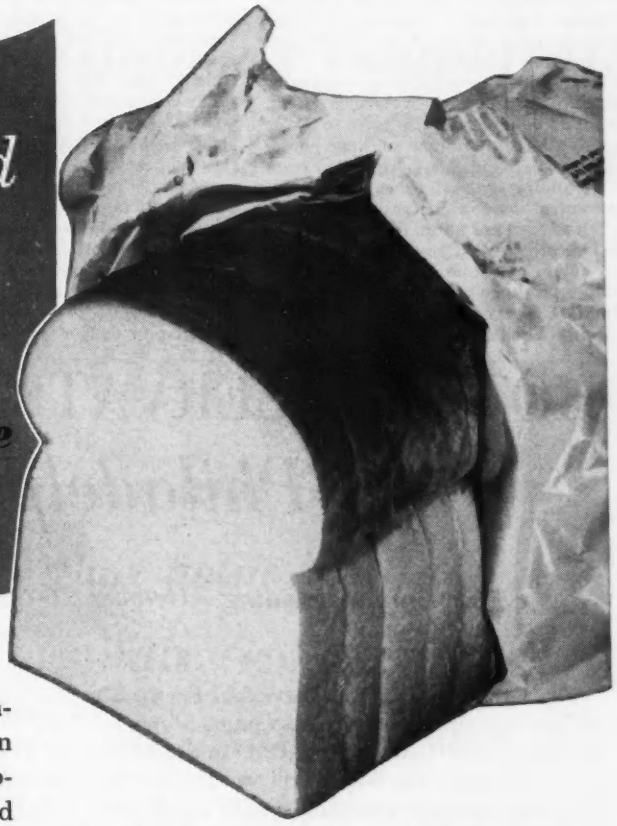
**Lowest Operating Cost**

A Savory has the lowest operating cost in the commercial toasting field. Gas models operate on any type of gas, for as little as ¾ of a cent per hour. All-electric units have low connected load and comparably low operating costs.

Savory EQUIPMENT, INCORPORATED
128 Pacific Street, Newark 5, N. J.
*Sold by Leading Dealers Everywhere*

# *Enriched Bread*

## *a Valiant Guardian Against Deficiency Disease*



As a result of the nationwide enrichment of bread, the average American consumes notably more thiamine, riboflavin, niacin, and iron.[1] Enriched bread has thus served as a vigilant guardian against beriberi, ariboflavinosis, pellagra, and iron-deficiency disease.[2]

According to calculated values, the food supply of the nation during 1942-1948 provided 25 per cent more thiamine, 10 per cent more riboflavin, 15 per cent more niacin, and 14 per cent more iron than it would have without the nationwide enrichment of bread and flour.[3,4]

In consequence of this nutritional enhancement of the nation's food supply, enriched bread has been a material aid in improving national nutritional health.[2,4,5,6]

Enriched bread also supplies important amounts of high-grade protein, calcium, and nutrient energy. Its protein, comprising flour protein and milk protein, contributes significantly to sound growth and tissue maintenance.


1. Groggins, P.H.: The High Price of Eating Well, J. Agr. & Food Chem. *1*:1124 (Nov. 25) 1953.
2. Sebrell, W.H., Jr.: Trends and Needs in Nutrition, J.A.M.A. *152*:42 (May 2) 1953.
3. Nutrients Available for Consumption per Capita per Day, 1909-1948, United States Department of Agriculture, Miscellaneous Publication 694, 1949.
4. Jolliffe, N.: The Pathogenesis of Deficiency Disease, in Jolliffe, N.; Tisdall, F.F., and Cannon, P.R.: Clinical Nutrition, New York, Paul B. Hoeber, Inc., 1951, Chap. 1.
5. Flour and Bread Enrichment, 1949-50, The Committee on Cereals, Food and Nutrition Board, National Research Council, 1950.
6. Sherman, H.C.: The Nutritional Improvement of Life, New York, Columbia University Press, 1950, pp. 86-87.


ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

**AMERICAN BAKERS ASSOCIATION**
20 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

"superconcentrate" has been developed by chemists of the U.S.D.A.'s Citrus Products Station. The Station has previously developed a sweetened 8-fold limeade concentrate and an unsweetened 16-fold lime-juice concentrate.

The unsweetened 35-fold superconcentrate is prepared by concentrating about 12 volumes of fresh juice to 2 volumes, adding 1 volume of lime purée, and freezing. Limeade is prepared from it by adding about 1 lb. sugar to 1 pt. concentrate and diluting to 4⅜ gal.

The sweetened 8-fold limeade concentrate is prepared by concentrating about 7½ volumes of lime juice to 3 volumes, adding 1 volume of purée, sweetening to about 68 per cent soluble solids, and freezing. Preparation of the limeade is simple—7 volumes of water to 1 volume of concentrate.

These concentrated products are prepared entirely from fresh fruit, except that sugar is added as needed. Excellent product control during processing is possible in that the oil content, soluble solids-acid ratio, and concentration can be held as desired, making uniform products possible. Equipment for producing these concentrates is on hand in orange concentrate plans, and fresh limes are available in largest quantities in the late summer and fall when orange processing equipment is normally idle. Production of the lime concentrates would, therefore, tend to extend the processing season, increase use of equipment, and provide employment at a slack time.

Storage space requirements of the superconcentrates as compared to those of the usual sweetened single-strength lime juice should be of interest to institutions with limited frozen storage facilities.

**Cattail as Food.** To most people, cattails are something which women treasure for dried flower arrangements. Some remember that their grandmothers collected cattail fluff for pillows and warm comforters or that when dipped in kerosene, they were used for torches in parades. However, research at Syracuse University indicates that large-scale cultivation of cattails could provide a new source of food, as well as other useful products.

Dr. Ernest Reed, Chairman of the University's Department of Plant Sciences, and Leland C. Marsh of the Department's Cattail Research Center, have shown that the "root" or rhizome can be eaten like potatoes, or ground up to make flour for baking. The starch content is high enough for use as a substitute for cornstarch in pudding.

A detailed chemical analysis of the rhizome flour, made by Christopher Giacino, indicated that the cattail flour has more protein than flour from corn or rice, but slightly less than that of potato or wheat flour. It appears to be highest of all flours compared in fat content, and only potato flour contains more minerals. It has a lower water content than all except wheat flour.

Acceptability of a plant as food depends, of course, on its taste. Dr. Marsh compares cattail flour with potato flour for taste and cites a batch of cookies prepared from cattail flour as one way in which it can be used. He characterizes them as "darned good."

Other potential uses for cattail products seem almost unlimited. The flour can be fermented to produce ethyl alcohol; it makes a good substrate for growing some molds from which antibiotics, such as penicillin, are produced; and 40 per cent of the dry weight of a cattail can be redeemed in fiber. Although the fiber doesn't have the strength of hemp or flax, it could be used for most of the purposes that jute is used today. Cattail fluff can substitute for kapok, and the wax obtained from cattail oil offers potentialities as a coating for paper. Traditional uses for cattails would continue, too—that of caulking the ends of barrels with the stems to make them water tight and of using the leaves in rush furniture.

**Freezing Tenderizes Meat.** Does freezing make meat more tender? According to R. L. Hiner, meat research specialist of the U.S.D.A., the answer is: Generally, yes. He found that freezing makes some cuts and some types of meat more tender than others. He also found that the lower the temperature, the greater the tenderizing effect. For instance, at 0° to −10°F (the temperature of most freezing compartments in home freezers or lockers), there was considerably more tenderizing than at 20°F., the

# HOTEL RESERVATIONS
## *Philadelphia*

▸*37th Annual Meeting—October 26–29*

Please make your hotel reservations for the 37th Annual Meeting of The American Dietetic Association through: THE CONVENTION & VISITORS BUREAU, 17th & Sansom Sts., Philadelphia 3, Pennsylvania. The Bureau will accept either the form given below, or a letter containing equally specific information. You will receive confirmation of your reservation.

The Philadelphia Commercial Museum, where daytime meetings and exhibits will be held, is approximately two miles from the hotel area. The hotels listed below are located within a few blocks of The Benjamin Franklin Hotel, the headquarters hotel.

| Order of Choice | | Single | Double | Twin Beds |
|---|---|---|---|---|
| _____ | Adelphia | $6.50–7.00 | $10.50–12.00 | $10.50–12.50 |
| _____ | John Bartram | 6.00 | 9.00 | 12.00 |
| _____ | Benjamin Franklin | 6.00–9.00 | 9.00–12.00 | 13.00–15.00 |
| _____ | Sylvania | 7.50 | — | 10.50–12.50 |

☐ With single bed (very scarce; arrange for double occupancy, if possible)

☐ With double bed (for two persons)

☐ With twin beds

(PLEASE PRINT)

**NAME**.....

**ADDRESS**.....

**CITY & STATE**.....

**ARRIVAL DATE**.....**DEPARTURE DATE**.....

.....

**(Name of person who will share your accommodations)**

# *Come Join Us for a Delicious Glass of Bombay Orange and Bombay Grapefruit —at the A.D.A. Convention*

**BOOTH NO. 513**

# *Taste the*

## *Orange and Grapefruit that helps leading hospitals, colleges and institutions ease the budget squeeze!*

**.0157c** per 4-ounce Serving, Bombay California Valencia Orange Base

**.0148c** per 4-ounce Serving, Bombay Grapefruit Base.

- More than Minimum Daily Adult Vitamin-C Requirement in every 4-ounce serving.
- No artificial coloring, no artificial flavor, no preservatives added.
- No refrigeration required.

We'll miss you if you can't come to the convention... but if you just can't make it, write to us for Assays and Trial Can of Bombay. Try it on your menu at our expense. No obligation, whatever.

**The H. R. Nicholson Co.**
**Kenshaw & Oakleaf Aves.**
**Baltimore 15, Maryland**

temperature of meat storage containers in the usual home refrigerators. Dr. Hiner explains that as ice crystals form in the meat, the fibers swell and break and the connective tissues stretch and break. Therefore, the tenderizing effect is largely mechanical. Strangely, freezing had the least tenderizing effect on meat that was naturally the most tender or the toughest.

**Thawing Frozen Meat.** Because of the widespread use of frozen meats, cookbooks of the future will include thawing times and temperatures, as well as cooking times and temperatures of frozen foods, according to Faith Fenton of the New York State Experiment Station, Ithaca. Proper thawing of meat is necessary to avoid excessive dripping of juice.

Based on research, Dr. Fenton recommends the following approximate thawing times for meat.

Thawed in the refrigerator: steaks 1 in. thick take 12 hrs.; small roasts, 3 to 4 hr. per pound; large roasts, 4 to 6 hr. per pound. Thawing at room temperature: 1-in. thick steaks take 2 to 3 hr.; small roasts, 1 to 2 hr. per pound; large roasts, 2 to 3 hr. per pound.

The fastest method of thawing is by an electric fan. One-in. thick steaks take 1 to 2 hr.; small roasts take 1½ to 2 hr. per pound. Dr. Fenton does not recommend this method for large roasts, however, because meat does not thaw evenly and there is excessive loss of juice from the outer thawed part of the roast.

**Dr. Louise Stanley.** News of the death of Dr. Louise Stanley, first chief of the U.S.D.A. Bureau of Home Economics, has been received with sorrow in the A.D.A. office.

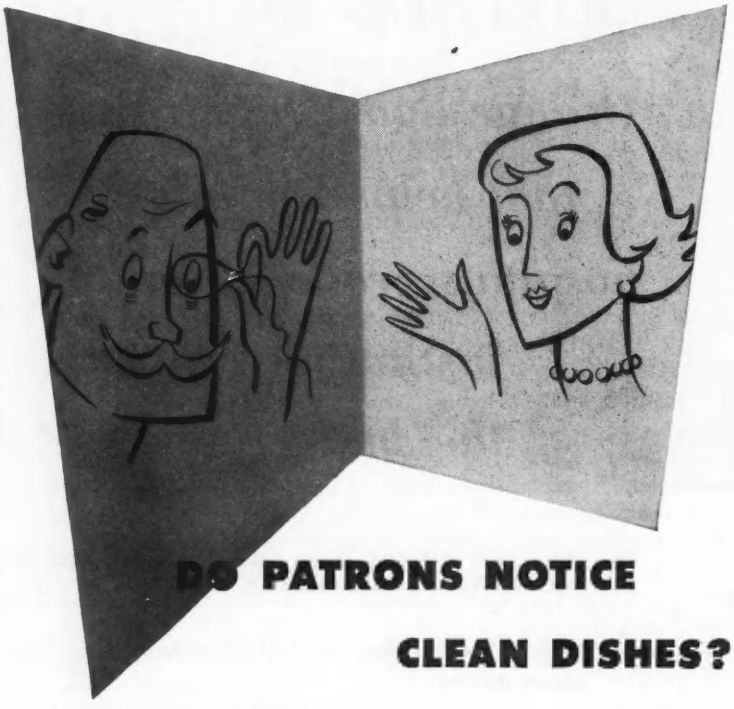
Before entering government service in 1923, she had taught and conducted research at the University of Missouri and had served as the chairman of the Home Economics Department of that institution. Under her direction at the Bureau of Home Economics, government research workers analyzed foods and clothing, and millions of bulletins were published to educate the public about scientific menu planning, budgeting, and so on. Following her retirement in 1950, she was called back to serve as consultant with the Office of Foreign Agriculture Relations, a post she filled until a year ago. In recognition of her world-wide home economics activities, an American Home Economics Association international scholarship for Latin Americans was named in her honor last year. In 1945, she was a member of the World Economy Committee of the Mexican-U. S. Commission on Agriculture and in 1928 and 1930 she was the U. S. representative at the Pan-Pacific Women's Conference in Hawaii. She had served as a member of the Food and Nutrition Board and the committee on selections of home economics specialists for service abroad under the Fulbright Act. She was the first woman to receive a doctor of laws degree from the University of Missouri.

**Margaret Ackley Cramer.** The Santa Clara County Hospital has written us of the death of Margaret Ackley Cramer, Head Dietitian, on June 24. She had been at the hospital for twenty-seven years and built the dietary department. She had been a member of A.D.A. since 1923.

**Josephine Sutfin Crawford.** Notification of the death of Josephine Sutfin Crawford on June 14 has been received. Mrs. Crawford had been a member of A.D.A. since 1929, and was employed early in her career at the South Side Hospital, Pittsburgh, and the Essex County Hospital, Cedar Grove, New Jersey, before becoming a homemaker.

**Mary Patricia Flatten.** We have just recently had word from the husband of Mary Patricia Myer Flatten, that she passed away on July 23, 1954. She had been a member of A.D.A. since 1948, and had been employed in the Dietetic Department, St. Michael's Hospital, Grand Forks, North Dakota, before becoming a homemaker.

**Magdalen Weber Hatfield.** Word has been received of the death of Magdalen Weber Hatfield, on July 2. She had been a member of A.D.A. for twenty-eight years and had served as Head Dietitian at the Woodlawn Hospital in Chicago. Her home was in Pueblo, Colorado.



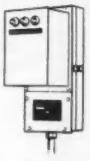

You bet they Do!

Yes . . . consciously or not, your customers *are* influenced by the condition of the glasses, dishes and silverware that set the stage for your food. That's why it'll pay you in repeat business to use DuBois products on your tableware . . . thus making sure they're washed spotlessly clean with no lustre-dulling bacteria-breeding film or water droplets. Regardless of your washing problems, whether done by hand or machine with hard or soft water, you are guaranteed crystal-clear utensils with these DuBois products:

K-O-L'r—for most effective machine washing
D-LITE—for perfection in hand washing
S-U-D-S—a supersudser for pots and pans

Write for complete data on any DuBois product and DuBois Personally Engineered Service.

For perfect results in any dishwashing machine, contact DuBois today about the new Electronic Control. It maintains uniform solution strength, guarantees cleaner, brighter tableware.

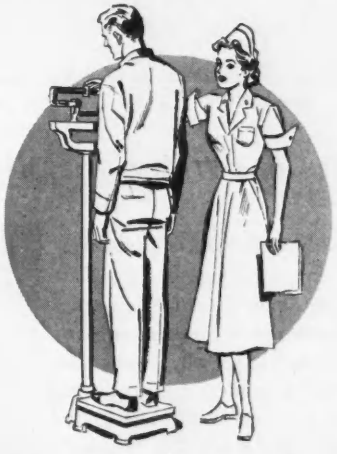


*Representatives and Warehouses from Coast to Coast*
*Dept. D*

The DuBOIS Co., Inc.
Cincinnati 3, Ohio Los Angeles 33, Calif.

# DIETITIANS...

## Enjoy varied assignments—stimulating work—as an Air Force Officer!



FOR THE HIGHEST in personal prestige and professional achievement, investigate the opportunities offered by the United States Air Force. You begin your career as a full fledged officer, working in modern, well equipped Air Force hospitals throughout the world. A planned rotation of assignment assures you of a rich, varied professional experience within a relatively short period of time.

As an Air Force dietitian, your work takes you to many interesting places—England, France, Germany, Japan, the Caribbean and many sections of our own United States . . . And wherever you go, you are part of a top medical team, working with the best as one of the best! In addition, you have opportunities for further professional education—even to graduate work leading to a master's degree in your field.

For a bright future, serve your country as an Air Force Woman Medical Specialist.

**U.S. AIR FORCE**
**WOMEN'S MEDICAL SPECIALIST CORPS**

**FILL OUT THIS COUPON TODAY!** JD2

**OFFICE OF THE SURGEON GENERAL**
**Headquarters, United States Air Force**
**Washington 25, D. C.**
**Attention: Women's Medical Specialist Corps**

*Please send me all the details on my opportunities as a dietitian in the Air Force.*

Name .....

Street .....

City ..... Zone ..... State .....

## *News of State Associations*

**California Dietetic Association.** Two workshops sponsored by the *Bay Section* have been held this year at Stanford University Hospitals. The subjects of the two workshops held in cooperation with the Adult Education Division of the San Francisco Public Schools were "Supervision" and "Human Relations."

The Professional Education Committee of the *San Jose Section* joined with the Food Administration and Diet Therapy Committee in continuing the project of making dietetic services available to homes for the aged, children's homes, sanitoriums, and similar institutions where no dietitian is employed. The offer to send out menu and food suggestions to institutions without dietitians was accepted with enthusiasm by county officials. Dietitians in this region have given numerous talks on nutrition to parent-teacher groups and Girl Scout organizations.

Three community educational projects in *Santa Barbara* have consisted of a twelve-week adult education course in obesity, a 10-hr. diet therapy course for practical nurses, held at Junior College, and a food and nutrition course for practical nurses.

*Central Valley* students in dietetics at Fresno State College this last year were given an opportunity of receiving laboratory experience at local hospitals where they observed the food service methods in various areas: ward, cafeteria and central tray service; nutrition clinic procedures; and received instructions in diabetic diets.

At the December meeting of the *Sacramento Area*, dietitians were hostesses to twenty high school counselors. The program consisted of a panel made up of dietitians and food managers in different phases of our profession, with each panel member telling college attended, type of internship followed, different positions held, and interesting experiences. The counselors, it is believed, learned many phases of the profession they had not realized existed.

**Ohio Dietetic Association.** New officers for 1954–55 for the Ohio Association will be: President: Mrs. Vivian L. Laird, Miami Valley Hospital, Dayton; President-Elect, Dr. Helen Hunscher, Western Reserve University; Secretary, Virginia Draim, Ohio State University Hospital; and Treasurer, Dorotha Symons, Christ Hospital, Cincinnati.

Two dietetic intern scholarships of $200 each have been awarded this year by the Ohio Association to students from Western Reserve University—Shirley Brantford and June Bates. Miss Branford will serve at Beth Israel Hospital in Boston and Mrs. Bates will go to the University of Minnesota Hospital.

An excerpt from the annual report of the *Akron Dietetic Association* states that a scholarship fund, to be a minimum of $50 a year, will be set aside annually until a deserving local person (or persons) is found who requests help in continuing her career in dietetics.

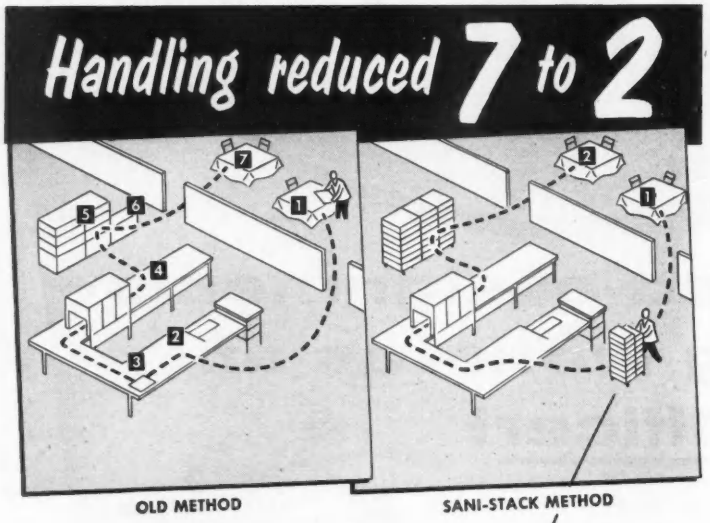
The Community Nutrition Section of the *Columbus Dietetic Association* is working on a leaflet on infant feeding for the use of general practitioners which would include principles of feeding on which pediatricians agree.

**Oklahoma Dietetic Association.** The winners of the essay contest sponsored by ODA on "Why I Have Chosen Dietetics as a Career" were: first, Patsy Ann Moss, Oklahoma A. & M. College; second, Patsy Graham, Oklahoma University; and third, Joan Marianos, Oklahoma A. & M. College. First prize was a $50 bond, and second and third awards were $25 bonds.

In an effort to familiarize doctors with the Oklahoma State Diet Manual, the Diet Therapy Section exhibited at the spring convention of the Oklahoma State Medical Association.

**Pennsylvania Dietetic Association.** Candidates elected on the 1954–55 ballot are: President-Elect, Corinne H. Robinson, Drexel Institute of Technology, Philadelphia, and Treasurer, Alma McCougall, Pennsylvania State University, State College.

**Vermont Dietetic Association.** An intern scholarship is now availablo to a graduating Vermont senior in home economics. The plan is to encourage seniors to take an internship and to assist a


**It's Done With Sani-Stack® Racks**

With modern Sani-Stack method you eliminate five handlings of cups and glasses. That's more than 70% less handling with savings in breakage as high as 50%. It's easy to see why! Sani-Stack racks methodize your cup and glass handling, save space, cut costly breakage to a minimum. They're available in tinned wire and stainless steel. Also the famous Sani-Stack Imperial *plastisol* racks for cups, bowls, plates, etc. To get full information on how they can effect large savings for you write today for our free folder. No obligation, of course!

**For more than 20 years sold through better restaurant equipment dealers everywhere**

**Metropolitan WIRE GOODS CORPORATION**
70 Washington Street, Brooklyn 1, N. Y.

# *It's here . . . it's a sensation!*

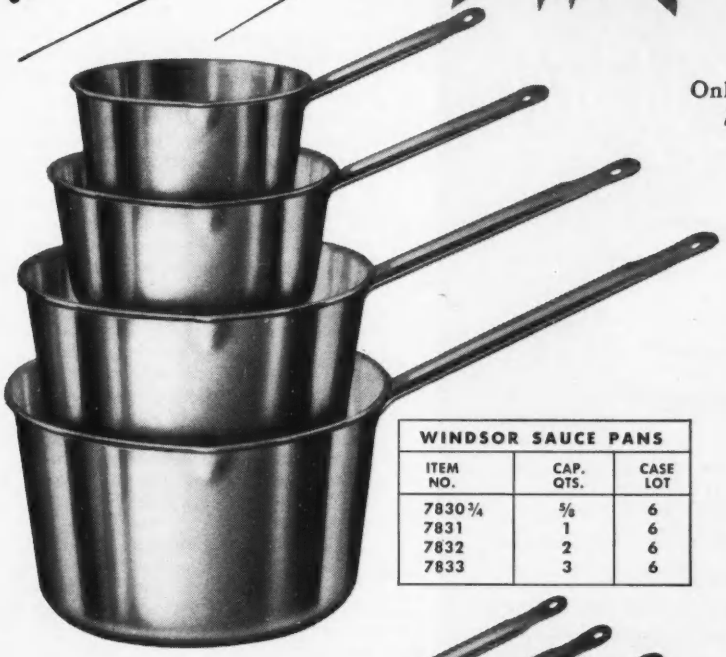
NON-TARNISHING...

SOAKS UP HEAT FASTER...

STAINLESS STEEL WARE
Vollrath
PAT. APPLD. FOR
ALLOY HEAT CONDUCTOR BOTTOM

SPREADS HEAT EVENLY...

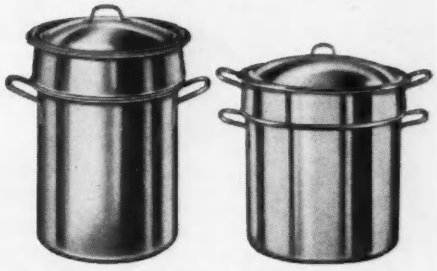
FOR BETTER, LOW-COST COOKING!



Only new Vollrath Ware offers this *bonded-on alloy bottom* that combines top cooking performance with the heat-retaining and easy-cleaning advantages of stainless steel! Get Vollrath Ware now!

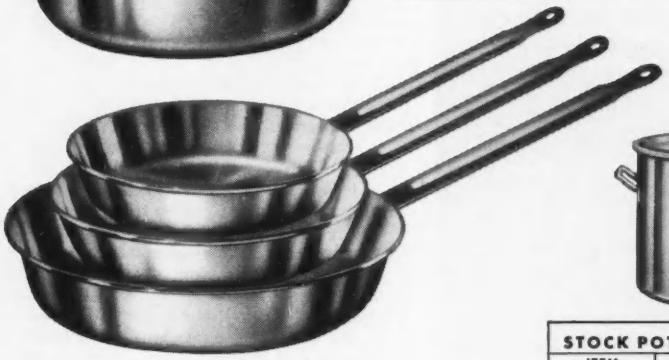
**WINDSOR SAUCE PANS**

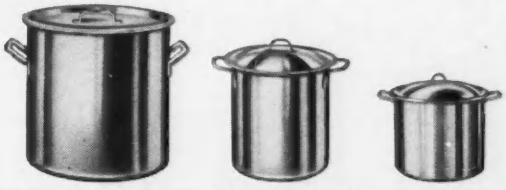
| ITEM NO. | CAP. QTS. | CASE LOT |
|---|---|---|
| 7830¾ | ⅝ | 6 |
| 7831 | 1 | 6 |
| 7832 | 2 | 6 |
| 7833 | 3 | 6 |



**DOUBLE BOILERS**

| ITEM NO. | INSET CAP. | CASE LOT |
|---|---|---|
| 7704 | 4⅛ | 1 |
| 7711 | 11 | 1 |





**FRY PANS**

| ITEM NO. | TOP DIAM. (Inside) | CASE LOT |
|---|---|---|
| 7843 | 8⅜ | 6 |
| 7845 | 9⅜ | 6 |
| 7847 | 12 | 3 |

**STOCK POTS (with cover)**

| ITEM NO. | CAP. QTS. | CASE LOT |
|---|---|---|
| 7855 | 4¼ | 1 |
| 7859 | 12½ | 1 |
| 7867 | 24 | 1 |
| 7868 | 38 | 1 |

**STOCK POTS (without cover)**

| ITEM NO. | CAP. QTS. | CASE LOT |
|---|---|---|
| 7854 | 4¼ | 1 |
| 7858 | 12½ | 1 |
| 7862 | 24 | 1 |
| 7863 | 38 | 1 |

FIRST FOR QUALITY IN STAINLESS STEEL

SINCE 1874
The Vollrath Co.
SHEBOYGAN, WISCONSIN

*Sales Offices and Display Rooms*
**New York • Chicago • Los Angeles**

deserving student financially in the fifth year of work at an accredited hospital.

**Washington State Dietetic Association.** New officers chosen at a recent election are: President-Elect Edna Messinger, State College of Washington, Pullman, and Treasurer, Patricia Brockbank, Seattle.

## *News of Products and Services*

Two new Toastmaster products were introduced in August by the *Toastmaster Products Division, McGraw Electric Company*. One, the entirely new Powermatic Toaster, automatically lowers the bread, starts it toasting, and serves it up fast. The other is the sensationally new De Luxe Hot-Food Server, which keeps food hot and oven-fresh for hours. A special feature regulates the humidity and circulation of air, thus allowing the operator to determine whether conditions within the server are to be "moist" or "crisp." Luxurious travelling showrooms in the form of display trailers are scheduled to cover every state in the U. S.

*Robertshaw-Fulton Controls Company* has developed gas range controls that automatically time and shut off individual top burners and ovens. The new controls, designed for use in home gas ranges, are known as the "Potwatcher" for top burners and "Temp 'n Time" for ovens. For added convenience new controls are designed so that they can be operated independently of the timing mechanism.

Announcement has been made by *Robertshaw-Fulton* of the appointment of Rhea Shields as Director of Home Economics. In this capacity, Miss Shields will study consumer needs and and work with appliance manufacturers, dealers, and distributors. She will also help maintain the consumer appeal of the conpany's controls on home appliances.

A special file for the professional reference of architects and kitchen consultants has been produced by *Hotpoint Company*. This is in addition to its standard catalog of commercial specification sheets for dealer-customer use. Each product in the *Hotpoint* line of counter and heavy duty commercial electric cooking equipment, is treated separately, giving illustrations, diagrams, and technical data. Copies are available free to all architects and kitchen consultants. The file carries the number JN-500. Also available without cost is a file of scale templates on heavy duty equipment for use in planning kitchen layouts for commercial or institutional food-service operations. For this set, the number is Y-7000.

The *Universal Dishwashing Machinery Co.* has received the Seal of Approval of the National Sanitation Foundation for its spray-type dishwashing machines. These washers include single-tank roll top and door and curtain models available in a wide variety of sizes. The more than thirty-one models include such features as final rinse boosters, timed hydraulic and rinse control, and "swing-wash" action which swings dish racks back and forth through power spray.

A free folder which gives recipes and hints for outdoor eating has been issued for grocery distribution by *H. J. Heinz Company*. The thirty-two page purse-size booklet contains twenty-five recipes developed by the Home Economics Department of the company, and includes such dishes as savory baked beans, hamburgers, and raspberry frostees.

Cheese-flavored powdered mixes that need only the addition of water or milk to make sauces or hors d'oeuvres type spreads have been put on the market by *Dell Food Specialists*. First introduced at the National Restaurant Association convention this spring, the mixes come in four different flavors: Cheddar; blue cheese; Bar-B-Q cheese; and Onion-Garlic Cheese. Heavy or light spreads or thick and thin sauces can be prepared from the powders, depending on the amount of milk or water added. An egg beater or power mixer is used to get a smooth, creamy product.

*Wyandotte Chemicals Corporation's* Antibac is now available in 1-lb. 4-lb. jars, each equipped with a two-way spoon for quick measuring and making up of this sanitizing solution. Antibac is a mildly acidic germicide for use in sanitizing glass, silverware, and dishes. The new sized packages were

Walker
VITRIFIED
CHINA
GREENDALE...(Above) solid green rim on the Narrim shape. Moderately priced, beautifully made.
POPLAR...(At left) green, hand engraved pattern adds pleasant, homelike atmosphere.
Colorful Interest
• Add eye-appeal to appetite-appeal with Walker VITRIFIED China. Choose from a wide selection of patterns, colors and shapes. Send today for free set of color folders.
THE WALKER CHINA CO. • BEDFORD, O.

SERVE HUMANITY ☆ SERVE YOUR COUNTRY ☆ SERVE YOURSELF

# Your Career... more complete as an ARMY DIETITIAN

In serving humanity, you serve your country. In serving your country, you serve *yourself.* And with this extra satisfaction come these extra benefits! . . . As an Army Dietitian, you *begin* your career with the prestige and recognition of an officer! You serve in modern, well-equipped Army hospitals all over the world and work with a fine group of progressive, dedicated, professional men and women. You're part of an important medical team, wearing a uniform that marks you as tops in your field. Above all, you *know* you're *using* your skills to their greatest advantage . . . to the best benefit of humanity, country and self. Find out how exciting and rewarding an Army career can be.

WOMEN'S MEDICAL SPECIALIST CORPS

**U. S. ARMY MEDICAL SERVICE**

**FILL OUT THIS COUPON TODAY** D-548

**The Surgeon General—United States Army**
**Washington 25, D. C.**
**Attention: Personnel Division**

*Please send me further information on my opportunities as a Dietitian in the United States Army.*

**Check if interested in training opportunities** ☐

NAME.....

ADDRESS.....

CITY..... STATE.....

How to keep a patient →

patient →

Pamper his sweet tooth with the **NEW LOW-CALORIE** gelatin...

# D-ZERTA

## sweet--but sugar free!

**For desserts and salads**

**Wonderful D-Zerta,** made by the makers of Jell-O, comes in six delicious flavors, delightfully sweetened with saccharin . . . it's *absolutely carbohydrate free* . . . and it costs about 4¢ a serving! Delectable D-Zerta is a real treat for patients on low-calorie, low-carbohydrate diets. *Only 12 calories a serving!*

**D-Zerta is now available** in the dietetic section of grocery stores! Look for the new package containing 3 or 10 two-portion envelopes. Complete nutrition information, plus some exciting new recipes, with every package!

Made by the makers of **JELL-O**

Jell-O and D-Zerta are registered trade-marks of General Foods Corporation *A Product of General Foods*

designed as space savers in diet kitchens, glass washing sinks, soda fountains, and bars.

Dealers from thirty-two states and Canada, covering well over a hundred major trading areas, have pledged participation in "Visit Your Dealer Week," September 20–25, to be sponsored by *Institutions* Magazine. The event is designed to provide working displays of manufacturers' products, with trained personnel to explain them to visitors. It will include the very latest in hospital equipment, supplies, and methods at the dealer's showroom.

*Continental Coffee Company* has prepared a series of recipes for tempting salads and tasty sandwiches made from a special filling developed by Constance Conover, Quantity Recipe Director.

Quantity packs of California lemon juice products in institutional sizes are labor saving, simple to store and handle, economical, and profitable, according to the *Lemon Products Advisory Board*. A number of quantity recipes including salads, dressings, sauces, pies, and salmon loaf are available, plus a tabular breakdown of the four lemon products, giving size, type of container, storage life at different temperatures, total servings of lemonade per case, added preservatives, average cost per 8 oz. serving, and average net profit when sold for 10 cents.

Twenty-four models of all-coved, die-stamped sinks are announced by *Seco Company, Inc.* These sinks feature, rounded outside corners and inside corner coving on generous wide radii. The bowls are designed for complete drainage with no pockets, and drainboards are fluted and pitched to the sink. All of these die-stamped sinks can be furnished with electric or gas heater in one compartment for sterilizing.

A special arrangement for the sale of the new *Betty Furness-Westinghouse Cook Book* at a reduced price through any Westinghouse appliance dealer will be in effect until October 1, the trade publication date on which this Simon and Schuster publication will be put on sale at regular book stores for $3.50 a copy. The pre-publication price through dealers will be 88 cents, and there will be no "tie-in" or obligation whatsoever to purchasers. The book contains some one thousand recipes classified according to twenty-one categories.

*The Doughnut Corporation of America*, in its story of their twenty-sixth Annual Donut Month (October) promotion program, tells of the dunking "gimmick" that actually builds steady business. Membership cards to the National Dunking Association are handed out to restaurant customers. The card gives the new member permission "at all times to dunk donuts either in private or in public, without criticism or interference." The doughnuts-and-milk combination will be the central theme of this year's Donut Month, a repeat from last year. Co-sponsors with the Doughnut Corporation of America will be the American Dairy Association, the Milk Industry Foundation and the Doughnut Corporation of America.